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PERSPECTIVES FOR TEACHER TRAINING IN THE WORKS OF MATHEMATICS FAIR: A LOOK AT THE TEACHER CATEGORY

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ABSTRACT: Teacher training in Brazil has been the focus of interest and research in recent decades and has contributed to the understanding and advancement of the area. However, when its direction moves towards Mathematics Fair, research is still incipient. To contribute to this data change, the present study is the result of qualitative research centered on the problem: what teacher training perspectives can be revealed from the written texts from works presented in the category Santa Catarina's teachers at Math Fair? For this purpose, the corpus of analysis consisted of 38 publications registered from annals, relating to the category Teacher, for the period from 2014 to 2019. The descriptive and interpretative analysis of the corpus revealed that there are different perspectives for teacher training: one is more prominently, closer to practical rationality; another is more related to critical rationality; and, finally, a third one that is related to technical rationality. Therefore, it is possible to evidence a tendency of the lecturing teacher to report practices, which seek to overcome the traditional, prominently valuing the actions from their own successful experiences, but also with a view from the praxis. We conclude by indicating the relevance of discussions in the scope of the Math Fair about the implications of each identified training perspective, as well as suggesting problematizing the Teacher category.

Keywords: Movement in mathematics fairs network, teacher education, teachers' conceptions.

PERSPECTIVAS DE FORMAÇÃO DE PROFESSORES NOS TRABALHOS DA FEIRA CATARINENSE DE MATEMÁTICA: UM OLHAR PARA A CATEGORIA PROFESSOR

RESUMO: A formação de professores no Brasil tem sido foco de interesse e pesquisas nas últimas décadas e tem contribuído para a compreensão e o avanço da área. Porém, quando seu direcionamento caminha para Feira de Matemática, tais pesquisas ainda são incipientes. Com vistas a contribuir para que este dado se modifique, o presente estudo é o resultado de uma pesquisa qualitativa centrada na problemática: que perspectivas de formação de professores podem se revelar a partir dos textos escritos decorrentes dos trabalhos apresentados na categoria Professor na Feira Catarinense de Matemática? Para isso, o corpus de análise foi constituído de 38 publicações registradas nos anais, relativas à categoria

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Professor, no tocante ao período de 2014 a 2019. A análise descritiva e interpretativa do corpus revelou que há distintas perspectivas de formação de professores: uma, em maior destaque, mais próxima da racionalidade prática; outra, mais relacionada à racionalidade crítica e, por fim, uma terceira relacionada à racionalidade técnica. Portanto, é possível evidenciar uma tendência dos professores expositores a relatarem práticas que buscam superar um ensino tradicional, valorizando destacadamente as ações oriundas de suas próprias experiências bem-sucedidas, mas também com vistas a algo advindo da práxis. Concluímos indicando a pertinência de discussões no âmbito da Feira acerca das implicações de cada uma das perspectivas de formação identificadas, bem como sugerindo problematizar a categoria Professor.

Palavras-chave: Movimento em Rede das Feiras de Matemática, formação de professores, concepção de formação.

PERSPECTIVAS DE FORMACIÓN DE PROFESORES EN LAS OBRAS DE LA FERIA CATARINENSE DE MATEMÁTICAS: UNA MIRADA A LA CATEGORÍA DE PROFESORES

RESÚMEN: La formación de docentes en Brasil ha sido foco de interés e investigación en las últimas décadas y ha contribuido a la comprensión y el avance del área. Sin embargo, cuando su rumbo se dirige hacia las Ferias de Matemáticas, las investigaciones aún son incipientes. Para contribuir a que este dato cambie, el presente estudio es el resultado de una investigación cualitativa centrada en la problemática: ¿qué perspectivas de la formación docente pueden revelarse a partir de los textos escritos resultantes de los trabajos presentados en la categoría Profesor en la Feria Catarinense de Matemáticas? Para ello, el cuerpo de análisis estuvo conformado por 38 publicaciones registradas en los anales, relacionadas con la categoría Profesor, con respecto al periodo de 2014 a 2019. El análisis descriptivo e interpretativo del cuerpo reveló que existen diferentes perspectivas para la formación del profesorado: uno, más destacado, más cercano a la racionalidad práctica; otro, más relacionado con la racionalidad crítica; y, finalmente, un tercero relacionado con la racionalidad técnica. Luego, es posible evidenciar una tendencia de los profesores expositores a relatar prácticas que buscan superar la enseñanza tradicional, valorando de manera más destacada las acciones derivadas de sus propias experiencias exitosas, pero también con miradas a algo que surge de la praxis. Concluimos indicando la relevancia de las discusiones en el ámbito de la Feria sobre las implicaciones de cada una de las perspectivas formativas identificadas, así como sugerir problematizar la categoría Docente.

Palabras clave: Movimiento en Red de las Ferias de Matemáticas, formación de profesores, concepción de la formación.

INTRODUCTION

The Mathematics Fair (FMat), in various instances, is a consolidated movement in the state of Santa Catarina, having, in its history of more than 35 years of existence, several points of convergence with the history of Mathematics Education in Brazil (OLIVEIRA; ZERMIANI, 2020). Texts such as those by Zermiani (1996), Zermiani, Jubini, and Souza (2015), Biembengut and Zermiani (2014), and Silva and Garnica (2015) present considerations about the history of FMat, as well as its expansion and consolidation process. For Zermiani (2003, p. 42), the FMat “was born in Blumenau, from some innovative initiatives, developed by graduates of a specialization course in Education and Sciences, as well as by the teachers and students of the Mathematics Course at Furb”. In one of the first publications on this topic, Floriani, and Zermiani (1985, p. 1), who were its creators, state that:

The Mathematics Fair should allow the exhibition, to the external public, of the mathematical activities normally carried out inside or outside the classroom, by the internal public of the School [...] it aims to better focus on science teaching in the classroom. Due to the need to show the academic work to the external public, it transforms school activities into true living laboratories of scientific learning, co-participated [sic] by the community.

We are aware that since 1985, when this text was published, several changes have taken place³ not only within the Mathematics Fairs Network Movement (Movimento em Rede das Feiras de Matemática⁴ - MRFMat) but in the scenario that involves Mathematics Education. From what has been presented, we can see that the precepts defended are more in line with those of a critical perspective when they envision FMat as a space for the dissemination of activities that occur naturally within the classroom. They place the need for exposition as a reason for the teacher to envision the possibility of treating his/her classroom as a laboratory where he/she must work, guided both by the precepts defended within the academy, called scientific learning, and by the interests and aspirations of the community in which the school is inserted – the context. The act of proposing to basic education teachers that they participate in a space like FMat where they will expose what they naturally do in their classrooms puts them in a position of generators of solutions for teaching (FLORIANI, 1989), which reinforces, even more, our belief in this perspective of a space that may have had a critical aspect since its creation.

As professionals who participate⁵, study and research the MRFMat, we realize that it constitutes a unique movement in the Brazilian educational scenario, as it is free of charge, which essentially brings together teachers and students from different levels and educational institutions, mostly from Basic Education, opening space for them to expose the results of their experiences related to teaching and Mathematics Education. It proposes an interesting system of evaluation⁶ of these productions by peers, seeking to converge to a qualitative form and more distant from meritocracy.

For these and other very peculiar and avant-garde characteristics, FMat and MRFMat are fertile scenarios for research. They are seen by their participants as an important space for teacher

³ We emphasize that the changes are not the object of analysis of this study, but can be studied in published materials such as Biembengut and Zermiani (2014) and Hoeller et al (2015) point out.

⁴ An expression that refers to a continuous process of actions in which those interested in the Mathematics Fair share common goals. A movement that takes place through “collective discussions and participatory and deliberative spaces built throughout history. The Network of Fairs, on the other hand, reminds us of the interconnection of horizontal relationships, without hierarchy, but with common identity and objectives” that occur at various levels - school, municipal, state and national - in which socialization and sharing of ideas and experiences take place (OLIVEIRA ; PIEHOWIAK; ZANDEVALLI, 2015, p. 44).

⁵ The authors of this research have actively participated in the Movement for more than two decades, with different roles, such as: exhibitors, advisors, managers of both FMat and evaluation seminars, permanent committee member, evaluators, ad hoc evaluators and trainers.

⁶ Evaluation is also not the object of this study, but can be seen for example in Scheller and Zabel (2020), Oliveira, Civiero and Guerra (2019) or Hoeller et al (2015).

training.⁷ However, we know that there are several conceptions of training and this makes us think about which perspectives convey through the works presented at FMat.

Research whose object of study is the training of teachers considering the MRFFMat is still incipient. Among those identified in the literature review and close to the intention of this research, we highlight the studies by Silva (2014), Santos (2016), Silva (2018), Grando and Gonçalves (2019), Zabel and Scheller (2019), Oliveira, Civiero and Guerra (2019), Gonçalves and Grando (2019), Battisti and Avi (2019), Oliveira and Civiero (2019), and Santos, Oliveira and Civiero (2020).

Of those that highlight teacher training, Silva (2014) analyzed the narratives of 15 teachers from the early years of elementary school who were involved with the FMat editions in Santa Catarina, trying to attribute the meanings of conceptions and practices about teaching and learning mathematics. He concluded that, although there was no way to characterize the teachers' conception, it could suggest some highlights that emerged from the collection of narratives, such as difficulties, gaps, and a practice still tied to a training model closer to what we envision as practical rationality (DINIZ-PEREIRA, 2014). In this scenario, he places the Fair as an “attempt to overcome some obstacles related to the teaching and learning of Mathematics” (SILVA, 2014, p. 283), but incipient in terms of the theories that underlie its pedagogical practice, succumbing “to the temptation to characterize adequate mathematics teaching merely as one shaped by concerns related to the “student context” and to manipulative materials and didactic games” (SILVA, 2014, p. 283, author's emphasis).

Grando and Gonçalves (2019) identified that the participation and guidance of works in FMat contributed to the continuing education of two teachers when it led to changes in the movement of rethinking their practices, experimenting with other ways of teaching and learning mathematics and the proposition of a classroom culture of mathematics closer to problematization and less traditional. Such contributions were indicated by Gonçalves and Grando (2019) as a posture of a teacher who aligns with the precepts of creative insubordination (D'AMBROSIO; LOPES, 2015). In the context of this study, we noticed that in both works, the highlighted teachers present attitudes and postures aligned with the assumptions of knowledge of the practice (COCHRAN-SMITH; LYTLE, 1999) and critical rationality (DINIZ-PEREIRA, 2014), in a movement of overcoming the theory and practice dichotomization, “assuming leadership and activism roles in the search for the transformation of classrooms, schools, and societies” (COCHRAN-SMITH; LYTLE, 1999, p. 34).

In their study, Zabel and Scheller (2019) brought to light the professional learning of two teachers from the early years, beginners in the context of training and experience of FMat, and concluded that the participants' learning was multiple. In their case, the experience as supervisors of FMat works constituted a training process, as it enabled a (re)construction, a deepening and broader domain of the knowledge of the content, which led to the reconfiguration of pedagogical and curricular knowledge and learning of its students – who reconfigured their experiential knowledge. For the beginners, participating in the FMat was a triple challenge: mathematical content; process; and continuing education. We emphasize that Zabel and Scheller's (2019) position regarding a study focused on content as a possibility of changing the teachers' practices does not mean a defense of the assumptions of technical rationality, but a belief that a deep mastery of the contents to be given is a necessary condition to be able to dare responsibly (GUÉRRIOS, 2002).

The study by Oliveira, Civiero, and Guerra (2019) showed that participation in the evaluation of works in FMat also contributes to the training of the teachers involved, as it causes changes in pedagogical performance. Finally, we highlight the study by Battisti and Avi (2019), which identified aspects/elements of FMat that show potential in the formation and constitution of the mathematics teacher, or the teacher who teaches mathematics, participating in actions of an extension project. They realized that the actions promoted by the project, which considered the process, the result, and the organization of FMat, allowed the subjects involved, and especially the teachers, different possibilities of instituting reflection processes, which involved the articulation between theories and practices related to pedagogical, curricular, context and purpose, content and student knowledge.

⁷ In this study, we assume that “teacher training has to be thought of as a lifelong professional learning, which implies the involvement of teachers in intentional and planned processes, which enable changes towards an effective practice in the classroom” (ANDRÉ, 2010, p. 176).

We notice that studies suggest that FMat contributes to the training of participating teachers, from a specific context. However, among the studies surveyed, we noticed that none of them took as an object of study the texts published in the annals to perceive in the writing evidence of this contribution. Nor do they investigate the conceptions of teacher training that these texts may be revealing, when considering the Teacher category⁸. Also, other aspects strengthen the motivations that led us to carry out this study. They derive from our involvement of more than twenty years in MRFFMat, in which we had the opportunity to play all possible roles: the exhibition of works, orientation, evaluation of works, ad hoc evaluation, teacher training, and management of the Fair.

In the scenarios referring to FMat, the affirmation that they are constituted as a space for the training of teachers who teach mathematics is recurrent. Our experiences in and for the Fairs have instigated us to go in search of other spaces for professional development, or have permeated the constitution of our teaching identity over the last few years, causing the teacher training models we defend/we conceived. These other spaces encouraged us to look at FMat to understand the professional development processes that can occur through it. In this sense, so that we can understand if such processes also occur with other teachers⁹ participating in the FMat, we initially ask: what perspectives of teacher training can be revealed from the written texts resulting from the works presented in the Teacher category at the Santa Catarina Mathematics Fair?

Thus, our view turns to professors who present works at FMat and who leave as a memory a publication in the annals – an experience/research report. In these publications, we seek subsidies *to analyze the perspectives of teacher training that can be revealed in these texts*. We should note that our focus of analytical interest is not the teacher subject, but the concept of training that supports (explicitly or implicitly) what is reported, as it describes knowledge, practice, and its role as a teacher. To support the analysis, we approach considerations about different models and paradigms of teacher education from Cochran-Smith and Lytle (1999), Diniz-Pereira (2014), Imbernón (2010), Alarcão (2010), Schön (1992), 2000), Carr and Kemmis (1998), Nóvoa (1992), Tardif, Lessard, and Lahaye (1991) and others.

In this study, we rely on Libâneo (1985, p. 19), when he states that “the way teachers carry out their work, select and organize the content of subjects, or choose teaching and assessment techniques has to do with theoretical-methodological, explicitly or implicitly”. We also consider the text written by the teacher as a manifestation of his conceptions, since the training models, in the conception of Diniz-Pereira (2014), guide the practice, and writing can be the materialization of this practice, revealing the conception of the teacher training. This is because, according to Wells (2001), the main purpose of writing is to conserve meaning so that it can be recovered later, a function that is inappropriate for speech. Also because “written language appears after the inner speech and presupposes its existence (the act of writing implies a translation from inner speech)” (VYGOTSKY, 1991, p. 85). Thus, supported by these authors, we believe that the texts written by teachers constitute a social mode of communication and thought for them.

To do so, we initially bring a brief theoretical discussion about the conceptions of teacher education. Next, we present the details of the methodological aspects of the research followed by the presentation and discussion of the results. In the final part, we resume the objective of the investigation and bring some considerations related to the training perspectives that are revealed in the teachers' texts.

THEORETICAL ASSUMPTIONS OF THE STUDY - CONCEPTIONS OF TEACHER EDUCATION

To support the analysis of the underlying conceptions that predominate in the formation of teachers that are revealed in the texts written by the expositor teachers who participate in the Santa Catarina Mathematics Fair, we will use three lines that share the concepts of (i) knowledge for practice, knowledge in practice and knowledge of the practice (COCHRAN-SMITH; LYTLE, 1999); (ii) technical

⁸ At FMat, participants can present works in one of several categories: “Special Education, Early Childhood Education, Elementary School - Early Years, Elementary School - Final Years, High School, Higher Education, Teacher or Community” (REGIMENTO..., 2019), p. 10).

⁹ Teachers can participate in the Fair as advisors, exhibitors, evaluators, fair managers and/or listeners.

rationality, practical rationality and critical rationality (DINIZ-PEREIRA, 2014); (iii) readings we have about different models and paradigms of teacher education from the perspectives of Imbernón (2010), Alarcão (2010), Schön (2000), Carr and Kemmis (1998), Nóvoa (1992), Tardif, Lessard and Lahaye (1991) and others. We understand that these can help us to look at our object of study from complementary perspectives.

According to Cochran-Smith and Lytle (1999), the conceptions of knowledge for practice, knowledge in practice, and knowledge of practice start from different and, in a certain way, antagonistic ideas about knowledge, about practice, and the interrelation between knowledge and practice. However, they are present, and sometimes at the same time, in educational policies, research, and practices, being constantly used to support the use of differentiated methods aimed at improving teaching and learning. In summary, we can say that knowledge for practice is what puts researchers in the spotlight, as they are the only ones responsible for generating knowledge and theories recognized as assertive for teachers to improve their professional practices. In this perspective, the teacher is seen as a mere user of the products, not being able to theorize or reflect on their practice.

The origin of this conception comes from the idea that knowledge regarding content, techniques, and methods directly implies the improvement of practice. In the context of this study, we realize that this conception is aligned with the conception of technical rationality, also known as the positivist epistemology of practice (DINIZ-PEREIRA, 2014) since it views the teacher as an agent who must be trained to reproduce the methods created/thought of by researchers who are in the academy. It is a fact that “in different countries of the world, even considering some variations, most teacher training curricula are built according to the model of technical rationality” (DINIZ-PEREIRA, 2014, p. 36). However, we believe that

to think about their formation means to think about it as a continuum of initial and continuous formation. [...] that training is, in fact, self-training, since teachers re-elaborate initial knowledge in confrontation with their practical experiences, daily lived in school contexts. In this confrontation and in a collective process of exchanging experiences and practices, teachers constitute their knowledge as *practicum*, that is, one that constantly reflects on and on practice. (PIMENTA, 1997, p. 11, author's emphasis).

Therefore, training models based on knowledge for practice or technical rationality do not account for the aspirations that Mathematics Education advocates. Nor do they satisfy the aspirations of teachers who are in the process of reflection, in search of practices with a higher level of student protagonism, going against the grain of teaching based on the accumulation of content in favor of technical training, without a vision of the world, of citizenship.

In a movement of epistemological rupture that considered the vision of training proposed by the academy or by specialists, the second conception of training presented by Cochran-Smith and Lytle (1999) is that of knowledge in practice. From this point of view, the practical knowledge of teachers is highlighted, assuming that they learn when they have the opportunity to live with more experienced colleagues, the so-called experts. Using their ability to make analogies and create new situations, their efforts are focused on organizing new classroom routines and creating problems, in a dynamic of constant exchange of experience with colleagues. For these authors, the ideas of knowledge in practice are aligned with a perspective that is growing in the educational scenario, that “much of formal research has little to do with the most central and immediate problems of education” (COCHRAN-SMITH); LYTTLE, 1999, p. 16). Along the same lines, the theory of knowledge from experience proposed by Tardif, Lessard, and Lahaye (1991, p. 227-228, emphasis added) points out that the knowledge necessary for teaching practice

they do not come from training institutions or curricula. This knowledge is not systematized within the framework of doctrines or theories. They are **practical knowledge (and not practical knowledge)**: they do not apply to practice to better understand it, they are integrated into it and are constituent parts of it as a teaching practice).

In this conception, the knowledge of practice is another knowledge that is not found in the theory proposed by the academy, demarcating in a very emphatic way a split between theoretical

knowledge and practical knowledge, a split that has been the target of criticism by several authors, such as Carr and Kemmis (1988), Pimenta (1997) and André (2010). Fiorentini, Souza Jr., and Melo (1998, p. 308) report that they felt a kind of discomfort when studying with other colleagues “the works of Schön, Zeichner, some Spanish and Portuguese authors about the reflective teacher and/or researcher”. This is because they believe that they present a denial of the role of theory in the context of teacher training and performance, especially in theoretical and epistemological aspects. Therefore, they argue that the

deep mastery of knowledge is essential for the teacher to have intellectual autonomy to produce his/her curriculum, effectively constituted as a mediator between the historically produced knowledge and that – the re-elaborated and socioculturally relevant school knowledge – to be appropriated/constructed by the students. This mastery and epistemological reflection are fundamental, especially in the areas of science and mathematics (FIORENTINI; SOUZA JR.; MELO, 1998, p. 316-317).

For Diniz-Pereira (2014, p. 37), “alternative models of teacher education emerged from the model of practical rationality, at least since the beginning of the 20th century”, germinated from Dewey's studies. Supported by the ideas of Carr and Kemmis (1988), Diniz-Pereira (2014) argues that practical rationality perceives education as a very dynamic activity to be systematized in technical terms. However, he warns that the ways of seeing the education of technical rationality and practical rationality are not very different, a fact that corroborates the conclusion that these models still do not meet the current demands of society in terms of education for a change of condition. With this, the third way of training teachers emerges.

We move on to the concept of training in which the focus is the transformation of education and society. In this understanding, research is the keyword, and both teaching and curriculum are treated critically and strategically. Unlike other conceptions, knowledge of practice does not separate the formal from the practical. It realizes that the knowledge that the teacher needs to have for a fruitful teaching practice only occurs if he/she assumes such a posture that his/her classrooms become “places for an intentional investigation while at the same time considering the knowledge and theory produced by other generating material for questioning and interpretation” (COCHRAN-SMITH; LYTLE, 1999, p. 2). In this perspective, the practice is no longer done by hand, or by experimentation without foundation, but is thought and rethought based on epistemology, dialogue, and exchange of experiences, taking into account the environment, culture, politics, and society as a whole. Within this conception, the teacher assumes a posture of constant learning.

Thus, Diniz-Pereira (2014, p. 40) also perceives critical rationality when exposing that

in the critical model, the teacher is seen as someone who raises a problem. As is known, some models within the technical and practical view also conceive the teacher as someone who raises problems. However, such models do not share the same view of this concept regarding the nature of teaching work. Technical models have an instrumental conception of problem raising; practitioners have a more interpretive perspective and critical models have an explicit political view on the theme.

This is because, for critical rationality, education is not something watertight. So, the teacher needs to take into account the historical aspects, the social and political context, as well as the implications of the student's development for their formation as an individual who lives in society.

The teacher's knowledge, therefore, does not reside in knowing how to apply theoretical or scientific knowledge, but in knowing how to deny it, that is, in not simply applying this knowledge, but in transforming it into complex and articulated knowledge to the context in which it is worked/produced. But it is worth remembering once more: we only deny something if we know it deeply. (FIORENTINI; SOUZA JR.; MELO, 1998, p. 319).

In this sense, we envision that training based on critical rationality would be interested in contextualizing educational practice in its historical and social dimension and in articulating reflection on it with social action oriented towards the transformation of the educational and social context. The

critical perspective as a claim to the training context is a provocation since Carr and Kemmis (1988) are premised on a critical educational science, guided by reflection and self-reflection of all those involved, so that they can participate in a relevant critical and theoretical discourse, as the need in critical educational science is, in addition to being theoretical, also practical.

After bringing to the fore some considerations about the conceptions or perspectives of teacher training, we proceed by explaining the methodological aspects of the research, followed by a discussion of the results.

METHODOLOGICAL ASPECTS

The study shows the characteristics of a qualitative approach to research in education. Descriptive and interpretive, it seeks new understandings of the phenomena studied (BOGDAN; BIKLEN, 1994; MORAES; GALIAZZI, 2011) from written records, constituting the corpus of analysis. In this qualitative study, we assume that writing can reveal the epistemological conceptions of the authors of a text, as well as give us indications of the conceptions of training of teachers who expose works at FMat. After all, “the qualitative approach demands that the world be examined with the idea that nothing is trivial, that everything has the potential to constitute a clue that allows us to establish a more enlightening understanding of our object of study” (BOGDAN; BIKLEN, 1994, p. 49).

Thus, we seek to make explicit what is implicit and, guided by the research question, analyze what perspectives of teacher training that can be revealed in the writing of works presented and published in editions of FMat. For this, we chose to investigate the Teacher category and turned our gaze to the FMat that occurs at the state level in Santa Catarina, annually. For the construction of the corpus of analysis, we surveyed all the works published in the annals of this FMat, considering the ballast from 2014 to 2019, a period in which the publications started to have an extension of five to seven pages, approximately. Thus, the corpus of analysis consisted of 38 texts from publications in the Professor category, coded for organizational purposes as T1, T2, T3, ... T38. Table 1 shows the distribution of the number of studies surveyed, distributed over the period considered.

Table 1 – Quantitative work of the corpus of analysis.

Year of publication	Quantity of texts	Identification of texts
2014	8	T1, T2, T3, T4, T5, T6, T7 e T8
2015	11	T9, T10, T11, T12, T13, T14, T15, T16, T17, T18 e T19
2016	7	T20, T21, T22, T23, T24, T25 e T26
2017	3	T27, T28 e T29
2018	5	T30, T31, T32, T33 e T34
2019	4	T35, T36, T37 e T38

Source: Prepared by the authors.

From the constitution of the corpus, guided by the research question, we proceeded with an accurate reading of the texts in full to identify aspects that could be related to the perspectives or models of teacher training. Thus, we begin a “textual analysis that proposes to describe and interpret some of the meanings that the reading of a set of texts can evoke. It always assumes that every reading is already an interpretation and that there is no single, objective reading” (MORAES; GALIAZZI, 2011, p. 14).

These aspects also contributed to analyzing the perspective of formation that can be revealed in each of the texts that make up the corpus. After a first categorization, we proceeded again with a reading from the theoretical perspective explained above, highlighting the units of meanings that, combined, gave rise to a core of ideas that we call large categories. After all, according to Moraes and Galiazzi (2011, p. 14), we intend to “build understandings from a set of texts, analyzing them and expressing from this investigation some of the senses and meanings that make it possible to read”.

Finally, we built the analytical metatexts consisting of description and interpretation of each of the categories, discussed and based on theoretical contributions from Cochran-Smith and Lytle (1999), and Diniz-Pereira (2014), among others, anchored in empirical arguments taken from the texts.

From the explanation of the analytical principles inspired by the contributions of Moraes and Galiazzi (2011) and the other components of this methodological contribution of the research, we move on to the next section presenting the understanding of the phenomenon studied.

DISCUSSION OF THE RESULTS

The analysis of the texts that make up the corpus enabled us to identify three different conceptions of teacher training. Such categorical conceptions are close to: i) teacher training in technical rationality; ii) teacher training in practical rationality, and iii) teacher training from a critical perspective. We use common central concepts that seem to symbolize/signalize attitudes and orientations aligned with each of the guiding theoretical perspectives, understanding that these are not mutually exclusive. In addition, we saw rationality coated with a procedural and communicative nature in which the way that teachers make use of knowledge is more relevant than the knowledge itself. Therefore, we will discuss each of these conceptions, describing and discussing them, based on the theory related to the theme and anchored in excerpts from the texts that make up the corpus of analysis of this research.

A – Perspective of teacher training based on technical rationality

In this category, based on the theoretical contributions presented, we understand that teachers whose practice is guided by this rationality act as a technician or executors of pre-established routines and behaviors, and their work simply consists of applying the knowledge produced by applied science. Thus, there is an emphasis on mastering the technique, as well as the belief that their learning, perceptions, and knowledge have no validity or prominence and should not be taken into account for classroom action. Therefore, pedagogical practice is based on the domain of technique and control over the practice resulting from theories thought by researchers and/or higher education professors.

In the context of this study, we realized that the teacher who is anchored in this perspective of formation, when participating in the FMat, socializes a work that is restricted only to demonstrating mastery and technical dexterity used in the application of theories and achievement of pre-established results, whether in research or the classroom. It does not dare, as it is stuck in the reproduction, implementation, or application of models recommended by educational theorists and/or researchers. One possibility is that this teacher is a repeater of practices, that is, it is not that technical rationality is important to him, it may be the only possible way to operate, it is normal, whether consciously or unconsciously.

A work exhibited at FMat based on this perspective can present a text tied to definitions, models, or prescriptions from others, coming from sources such as textbooks or their initial/continuing training when guided by technical rationality. It is an activity tied to teaching considered more traditional, guided by the exercise paradigm, and may bring some contextualizations, but these are generic or not made thinking in the context of their learning subjects. It does not bring reflections on what was developed or considerations of the political dimension of its educational practice.

Within our interpretation, we perceive that the writing of the report, in this perspective, tends to evidence the reproduction of practices alien to the teachers, denying their possibilities of criticality and judgment. It emphasizes contents and skills that can be measured or observed, which will highlight and reinforce the applicability of scientific knowledge that resolves, in a somewhat mechanical action, where the context is reproduced and disregarded.

Our perceptions stem from the fact that the training perspective based on technical rationality is epistemologically based on the positivist philosophy, which praises a teacher trained with a broad theoretical basis who will apply this theory to solve everyday problems. This was noticed, for example, in T13, when the authors sought with the work *“to analyze the performance of the textile effluent treatment plant, quantifying in percentage the efficiency of removal of the polluting potential of the textile industry effluent treatment plant, which is composed of the biological and physical-chemical treatments”* and as results, they expressed

that “the annual efficiencies that most varied were the parameters: *N Am*, *ST* and *SSed*, and the *ST* showed efficiencies below 10% in all years”. The writing reveals that this teacher makes use of a knowledge of the academy in his/her research practice, acting as a technician, someone who operates a knowledge arising from applied science and evidence technical skills. Not that it is not important. The problem lies in the fact that he/she does not dare to extrapolate the results obtained to perceive their implications in the context in which he/she is inserted, which such results indicate in the face of the context and problem analyzed. Nor do they suggest what could be done from these results. The results are only for the results, since, for him, the important thing, as expressed by Schön (2000), is to apply known and controllable techniques to solve problems, in this case, his/her research.

We also highlight texts from works that bring intervention proposals to the classroom, derived from the application of scientific knowledge, as was the case of T24, when he/she sought to “present a proposal for a didactic sequence that promotes the study of the polynomial function of the high school and that can help identify and overcome obstacles that students bring with them, which can significantly hinder or make learning impossible”. Writing makes it clear that, for them, there is a world of theory, represented by the university and the knowledge that derives from it, and the world of practice, in school institutions that must implement proposals arising from the application of systematic and normative knowledge thought by the former. In this way, they are in line with the belief that this sphere is responsible for theorizing and proposing solutions for the educational field, leaving for the teacher the role of following a prescribed model. Text T24 suggests that its authors may be defending the idea that “the professional activity consists of the instrumental solution of a problem made by the rigorous application of a scientific theory or a technique” (SCHÖN, 2000, p. 21) as if this proposal would be the adequate solution to the problems of contextualization, interest, and learning. The emphasis of the text is on “know-how”, characteristic of this instrumental perspective, with “primacy of technical knowledge over educational practice” (FONSÊCA, 2009, p. 93). Like T13, it does not bring other aspects that may imply positive results for learning and may be included in a type of training based on technical rationality, described as a traditional academic model. As described by Cochran-Smith and Lytle (1999, p. 6), these teachers may emphatically consider that knowledge for practice is constructed “through various training experiences that give access to the knowledge base. To improve teaching, [...] they need to implement, translate, or put into practice what they learn from experts outside the classroom”.

In this same perspective, we cite T34, who tried to present a planned workshop that, although it brought technological resources to show geometrically how to find the roots of a quadratic equation, only performed the steps of the tasks without reflecting on the purposes, interpretation of what was accomplished or changes in the educational context compared to the developed context, which can characterize a process in which a manual that provides the step-by-step mechanically, evidencing mastery and control over the educational action is only followed. The teachers may be limited to extrapolating the rigid models, established mainly by the teaching materials, as they understand that they must be followed in full and that there is no space for authorship based on their perceptions or the reality in which they live.

Another perspective of texts that make up this first category is those that bring up practices developed in the classroom, such as T38. In it, the authors report a work that begins with a diagnosis and, later, a didactic sequence. However, for the elaboration of this, according to the text, the deficiencies of the students identified in the diagnosis were not taken into account, and we were surprised by the fact that it was only used with a protocol without pedagogical implications. The central part of T38's proposal was around the study of textbook definitions, related to the concepts of matrices, determinants, systems, and vectors, which may show a posture more aligned with technical rationality, given the emphasis on common definitions and procedures present in textbooks. The structure and description of the proposal expressed in the text led us to understand that the classes of these teachers could be developed based on the definition scheme, examples, and exercises, which can be seen when they express that “the contextualization took place after these classes, with the study of digital images. There are two types of digital images that we call matrix or vector” (T38).

In the same text, the authors present a critique of textbooks right at the beginning when they express that: “Starting with the analysis of some textbooks, we realize that, in general, examples are contextualizing Algebra in everyday life and utilitarian aspects and operations with matrices are

introduced mechanically, without concern for the geometric investigation of these transformations” (T38). However, throughout the text, they do not bring or leave little evidence of the new search source, since they present a proposal very close to the traditional one made up with an application. Texts like this can evidence the existence of a teacher who presents and executes something still very much related to the textbook or some material produced by the academy, usually with little or no adaptation and reflection. They almost faithfully reproduce something already elaborated, exempting from venturing or not perceiving themselves as subjects capable of being authors.

Regarding this perspective of training, we identified that 23.7% of the texts reveal that, in summary, the practice reported by the teacher is closer to the perspective of training based on technical rationality, which shows an excessive appreciation of the knowledge produced in the academy, in detriment of the knowledge acquired through practice, putting the teacher in a position of just applying methods, techniques, and strategies without questioning them. To this result, we attribute two interpretations: first, we can have a teacher who is getting to know new theories and possibilities and, as the first stage of this training, replicates prescribed models without great participation, that is, with little protagonism and authorship; second, we realize that these teachers are based on a training paradigm that puts them on the sidelines when it comes to proposing solutions for teaching-learning relationships. Both interpretations need to be problematized if we believe in a formative movement that moves towards a perspective more aligned with the precepts of FMat.

In line with Floriani and Zermiani's (1985, p. 12) emphasis that the “Mathematics Fair, if it wants to contribute to the transformation of teaching, must awaken people's creativity and lead them to innovation”, we indicate that perspectives of training aligned with a technical paradigm need to be highlighted and problematized so that the teacher can overcome this paradigm and advance towards perspectives that give space for authorship and protagonism, characteristics that, in our view, are fundamental for having a practice. innovative.

B – Training perspective closer to practical rationality

In this second category, supported by theoretical contributions, we understand that a teacher who has his/her epistemological assumptions based on practical rationality guides his/her pedagogical action by the experience acquired with the practice over the years or by guidelines passed on by more experienced professors and colleagues, does not being concerned with studying theoretical aspects to guide their choices or reflect on them. What defines teaching work is the practical and deliberative nature of its interpretation and understanding of concrete situations that develop in the context of classroom interactions, teaching and learning situations, as well as their meanings and senses. Self-reflection, even without theorizing, can lead to changes in their practice, as the emphasis is on knowledge in action.

The teacher who has this perspective of training, when participating in the FMat, socializes a work resulting from his/her teaching activities in which he/she sought alternatives to problems in the classroom or related to his/her profession. This work emphasizes the practical character and seeks to remove or extinguish any theory that can anchor, justify or guide its choices and results. He/she will not be a technician who performs an action guided by others, but someone who seeks to validate actions in his/her successful experiences through narratives about his/her practices with his/her peers.

The analysis indicated that 42.1% of the works seem closer to this training perspective. They present a text in the form of a report based on previous experiences and/or topics of interest to students, which, in most cases, consist of a sum of activities that do not always converge to a central objective. There are attempts to break with the practice of traditional teaching, with the use of games or instructional materials, and project work, but without the awareness of their reasoned use of them, in a somewhat empirical way, perhaps because they acquired that knowledge observing the practice of others and ignoring the theory and studies behind it. The texts make it clear that, for these authors, “teaching is, to a certain extent, an uncertain and spontaneous craft situated and constructed from the particularities of everyday life in schools and classrooms” (COCHRAN-SMITH; LYTTLE, 1999, p. 15).

Thus, writing will essentially be used to report or describe an authorial pedagogical action performed, a didactic material or game developed for a certain purpose, devoid of any theoretical support that guides, anchors or justifies the choices and the results. After all, tacit knowledge will prevail, as the

emphasis is on professional autonomy. The text shows creation, a certain boldness in the teacher's actions, and the results found with practice, generally related to the learning of their students, indicate solutions for pedagogical action or that support or redesign new actions.

Texts included in this category bring experiences developed and centered on what we call *“themes of interest”, didactic sequences, or didactic materials or games*. These texts come from works motivated mainly by empirical and not theoretical justifications.

An example of “themes of interest” is T27, which deals with the “social function of mathematics”. In it, the authors sought to contemplate a sum of activities that do not always converge to a clear and defined central objective, that is, from the choice of a theme, they plan a series of activities enhanced by the subject, and not by the objectives they intended to achieve with their development. When such objectives are expressed, they are usually broad and difficult for the teacher to assess or follow up on. In this type of work, it is not the objectives that determine the choice of tasks, but the theme. This can be seen in T27 when the authors report in the text that they aimed to *“analyze the social function of mathematics existing in early childhood education and its importance in deconstructing the view that mathematics education only happens to older children”,* for this purpose developing a didactic sequence based on the *“children's song 'Sítio do Seu Lobato', which allowed the study of mathematical concepts, through playful approaches such as children's stories, mathematical games, songs, and games”*. The writing illustrates the results of practices planned and/or developed based on the theme *“sítio do seu Lobato”*. It denotes the authorship and protagonism of the teachers, who make use of their expertise in the elaboration of activities, most of the time originating from the children's desires or some aspect of the context, such as in T16, T31, and T35. There is a movement of creativity, in empirical study, but we do not know if the choice is conscious or random.

In T27, although they expressed the objective described above, the authors focus on the presentation of activities carried out with or by the children, but everything through the experience of practice, that is, what that set of activities would provide to the little ones. In addition, they do not bring any study that claims that there is a *“view that mathematics education only happens to older children”*, which may indicate a certain departure from the theoretical knowledge of the area and the existing literature on the subject.

When we direct our view to the conclusions that are made, such as, for example, “we conclude that there has been noticeable progress in children, the ability to reason and solve problems has become fast. The interaction with the parents was gradual, but satisfactory, achieving our goals. Proving that mathematics education is possible in this age group” (T27), we observed that it lacks a comprehensive or reflective essay that shows some change in the teachers' condition.

Also, the activities belonging to the practices are not guided, justified, or anchored in any theoretical support, after all, the focus is on the action and not on what can result from it because the knowledge results from it. The decisions made by teachers do not intend to apply scientific and pedagogical knowledge as in the model of technical rationality, but rather to bring to light a space with something derived from their autonomy, in which knowledge is constantly generated and modified, potentiated from the validation of their peers in the FMat socialization spaces.

In this same category, texts that bring didactic materials and games developed in and for the classroom, derived from their practice, as was the case of T8, also stand out. In this type of text, there is evidence of an effort by the teacher to work the contents less traditionally, making use of concrete materials, posters, everyday situations, and exits from the classroom. However, all this is done in a very empirical way, which characterizes and highlights practical knowledge for teaching actions and its direct relationship with classroom performance (COCHRAN-SMITH; LYTTLE, 1999). T1, T7, and T29 also fit into this same perspective. The texts probably express what teachers know and are part of an accumulation of experiences.

The reason for the lack of reflection in texts belonging to this category is still unknown. We do not know if the discussions are not included in the text due to lack of space (after all, there are about seven pages), because they believe that FMat is not the place to bring this up, or because they do not have conceptual appropriation and mastery of writing. Thus, we believe that practical rationality is closer to the tacit than to the exercise of “deliberate reflection on the experience” carried out (COCHRAN-SMITH; LYTTLE, 1999, p. 15).

Furthermore, it called our attention that, in most texts, the experiences are always successful, devoid of problems or difficulties felt or had in the course of the work. They only highlight positive results, as if the experiences were free of difficulties or obstacles that may have arisen, both from the students and the teachers. This can lead the reader to an illusion of a truly romanticized environment, in which everything occurs in perfect harmony, without obstacles and setbacks, which may indicate a naive conscience (FREIRE, 1979) of the teachers in what they should expose in the report. The validation of the developed proposal is made by the teacher's judgments and without aspects that justify or anchor the statements, only in the experience of practice. There can be two pretensions: to become an expert or to win the approval of one of them.

Finally, we emphasize that similarly to our study, the proximity character of the training concept to practical rationality had already been identified in the study by Silva (2014), although it was carried out in a temporal ballast before ours and using another corpus of analysis. This shows that little progress may have been made in FMat in this regard.

C – Perspective of teacher training closer to a critical rationality

In this third and final category, we will present our understanding of the conception in which the teacher is seen as a professional capable of reflecting, questioning, and theorizing. Based on the theoretical contributions already explained, we can say that a teacher whose practice is guided by critical rationality seeks to base practice guided by his/her experience, his/her knowledge, and the knowledge of colleagues acquired through experience with the practice, as well as the theories that support them. such choices. After all, he/she feels the need to understand phenomena from the historical and social context, highlighting his/her intentions with the educational action. He/she constantly seeks to reflect on the practice based on theoretical references, dialoguing and socializing such experiences with his/her peers. It would be a movement of non-hierarchy between knowledge of practice and academic knowledge, understanding that both have relevance and importance for a pedagogical practice aligned with the precepts defended by Mathematics Education. That is, he/she is someone who does not separate formal knowledge from practical while valuing the interrelation of the two.

We realize that the teacher who has this perspective of training, when participating in the FMat, socializes a work in which a process resulting from praxis is evident (PIMENTA, 1994), in which action and reflection are articulated. The teacher justifies the action taken with arguments that come from his/her experience, as well as from theoretical foundations that anchor his/her choices and his/her criticisms, considering the implications in the context in which they develop. He/she can create from experience, as well as reflect on practice based on theoretical references, realizing that these give him the confidence to dare in the classroom (GUÉRRIOS, 2002). He/she does not stick to prescribed models, but he/she is aware of the importance of theory to contribute to his/her practice, assuming a position of permanent training. In this understanding, we see that search is the keyword. Participation in collaborative groups can be a great ally for the teacher who wants to work within this perspective (COCHRAN-SMITH; LYTLE, 1999).

His/her writing was essentially used to report practices in which the teachers went beyond presenting or describing what the students did, also contemplating a conscious analysis of the actions developed, whether for learning, for practice, or the contribution to the area in question. The description thickens a critical reflection, showing that they can highlight the knowledge produced by doing and reflecting and/or questioning what was done, and why it was done. Therefore, the writing must include, in addition to the description of the action, an interpretation of what is being reported enriched through reflection and discussion of the results, since the implications of what has been developed is also a concern of the author. All of this is anchored in the theoretical assumptions that support the actions and reflections.

Regarding this perspective of training, we identified that 34.21% of the texts reveal that, in summary, the practice reported by the teacher is closer to the perspective of training based on critical rationality. As we can see in excerpts from T11, in which the teacher reports activities with games as follows: *“When playing, the students recorded (writing or drawing) about the game, describing their learning, their doubts, their opinions and their impressions about the experienced practice”*. He/she goes on to argue that *“games do not*

appear in a sequence to be used from beginning to end. They were designed to offer different levels of complexity, for different grades/years, involving different concepts and mathematical procedures”. In this same text, the teacher explains details of the planning and execution of his/her practice and gives recommendations to his/her peers on how to make good use of this methodology, as can be seen when he/she expresses: “For the teacher to introduce games into the daily life of their institution, he/she needs to recognize in play and games space for investigation and construction of knowledge about different aspects of the social and cultural environment in which children live. For the child to have a good performance in mathematics through play, there must be an educational intention, which implies teacher planning, aiming to achieve predetermined goals. The role of the teacher is fundamental, intervening and mediating the games, respecting the rhythm of each child, their discoveries of stimuli and challenges”. That is, he/she exposes his/her practice as well as proposes/cause others to have a reflective practice, in which they perceive as subjects capable of discovering the knowledge produced by doing and reflecting on what was done. Reflective practice requires, in addition to reflection on action, knowledge in action (tacit knowledge) and reflection on reflection in action. Practical rationality and/or reflection in action are not enough if it is not critical and can demonstrate and value praxis more than practice (PIMENTA, 1994). Moments of reflection were also highlighted in T6 and T18.

In the T28 report, the teacher moves between theory, practice, and reflection, based on the theoretical contribution of the Interdisciplinary Islands of Rationality by Gérard Fourez (2008). Even having made use of a teaching methodology proposed by a theorist from the academy, we realized that this work departs from technical rationality because the teacher reports that there is no need to follow steps linearly. He/she cites other authors to state that the route must be open and flexible when putting the eight steps as a suggestion, as well as warning that they can be revisited and/or deleted if necessary. The teacher also reports that he/she brought to his/her room professionals from other areas who were of paramount importance for the clarification of doubts, as well as for guiding the future paths of the project. In doing so, he/she is in a position of also a learner along with the students. Another highlight was the statement that during the application of the project “many questions were answered, others were not”, which we interpret as a statement consistent with a classroom environment that is very dynamic and heterogeneous, which would make it impossible for questions about any topic were completely exhausted. Supported by Cochran-Smith and Lytle (1999, p. 28), we understand that “it is not that teacher research provides all the knowledge needed to improve practice, nor that the knowledge generated by university researchers is of no use to teachers”. For the authors, when one is working within the conception of knowledge of practice, there is a movement in which

specialist teachers and others who are studying them (collaboratively or not) generate a new type, or a supplementary type, of formal knowledge about competent teaching practices. But neither are they assumed to generate and codify a new body of practical knowledge based on epistemological standards different from but derived from those of formal knowledge. On the contrary, **the implicit idea of knowledge of practice is that, through investigation, teachers throughout their professional lives – from novice to experienced – problematize their knowledge, as well as the knowledge and practice of others, placing themselves in a different relationship with knowledge.** (COCHRAN-SMITH; LYTLE, 1999, p. 28, emphasis added).

This attitude is evidenced in the teacher’s invitation for other specialists to enter his/her classroom, as well as in stating that “in each step we went through, we experienced the deepening of issues related to the understanding of the information contained in food labels, which was the theme of the project. These questions, in addition to involving the prior knowledge of students and their families, were also deepened with all the rigor of the scientific discipline”. In the field of problematization and constant reflection on his/her pedagogical work, we have in T6 the indication that “as a teacher of Early Childhood Education, I am constantly reflecting on my pedagogical work. I have been looking for countless alternatives in the classroom, so that children always learn more, in a more pleasant and meaningful way. Of these alternatives already applied, the game stands out as one of the most effective ways to involve the student in the activities carried out. The child learns better by playing and all content can be taught through play, in predominantly playful activities”. Most of the works perceived as closer to the critical perspective bring up moments of reflection, searching other sources, and looking at the student as someone who will bring him information that must be taken into account in the planning and execution of practices.

It called our attention that six of the thirteen works that were perceived as closer to this training perspective brought quotes from Professor Kátia Smole: T5, T11, T14, T17, T21, and T36. This leads us to believe that the author can be a reference for this group of teachers. Another highlight was that the first record of allusion to the National Common Curricular Base was made in T25, which was presented in 2016. We expected that authors such as Lev Vygotsky or Jean Piaget would be referenced, given that guiding documents of the curriculum of the Basic Education of state and municipal public education networks, such as the Santa Catarina Curriculum Proposal and the National Curricular Parameters, have an explicit alignment with the Historical-Cultural Theory and the constructivist perspective, respectively. We bring this up because the level of performance of the exhibiting teachers is located in EI and AI. However, few works brought up the considerations made by these two authors.

Following our analysis, the author of T17 reports that it was the students who “showed in the sequence everything that we would forward and what they would bring us as a source of research [...] At each stage, a learning process, a meaning, and the certainty that every attempt is built in a work articulated with the other areas, providing opinions, discoveries, formulations of hypotheses”. We agree with Cochran-Smith and Lytle (1999, p. 34) when they state that it is highly formative for teachers to challenge their assumptions, to perceive themselves as solution-generating agents, “studying their students, classrooms, and schools; building and rebuilding curriculum; and assuming leadership and activism roles in the pursuit of transforming classrooms, schools and societies”. When the author of T18 reports that “as a teacher of Early Childhood Education, I am constantly reflecting on my pedagogical practice” and that “during the application of interdisciplinary play, I worked a lot on thinking, instigated, provoked, led the student to think, to create hypotheses, asking a lot for their participation, mainly orally”, we envision a practice convergent to a critical perspective. Whether the teacher has this awareness or intentionality is something that was not possible to identify in this text, nor most of the others highlighted within this conception. However, we agree with Diniz-Pereira (2014, p. 40), when he/she states that “a community of professors-researchers, with students as co-investigators, establishes a democratic and student-centered process through which the curriculum is constructed “in the bottom to top” instead of “top to bottom”. Thus, even if the teachers have not declared themselves to be critical in their text, their attitudes demonstrate a posture aligned with this perspective.

In other texts, such as T4, T14, and T36, we see that the teachers make notes on the continuity of the work, which leads us to realize that the reported practice is not something stagnant or that it was thought only to expose in the FMat, but rather which is the exposition of something that happened and that will still happen in the classroom. This converges with one of the main objectives of FMat, signaled since 1985 by its creators, which would be to expose a practice that occurs naturally in the classroom. We cannot say that this convergence occurs due to knowledge of this information or the teachers' convictions.

In summary, we noticed in this collection of outstanding works that in the texts the authors dare to bring writing that includes authorship that goes beyond the report of practice by practice or mere reproduction of something already planned. We noticed that there is a theoretical foundation in the teacher's writing but in an implicit way. Although they are often not referenced, by the terms used we perceive assumptions that underlie the practice and/or the methodological choices. A point of convergence between the reported practices was to assume a posture of constant search for a more assertive practice that would meet the students' desires, as well as envisage providing conditions for future learning. As recommended by the critical stance, where there is a need for constant study, with a view to an ideal that is always in the future, in utopia. Perhaps because it is a report, there may be an understanding that the teacher should give more emphasis to what he/she did and how he/she did it, with both theoretical and practical justifications for the choices being in the background. Another limitation is certainly the number of pages, which prevents a longer discussion.

An overview of the analysis

After having discussed the training perspectives revealed in the analyzed texts, we consider it relevant to create an overview. The analysis identified that the texts present descriptions or narratives of practices, experiences, and reflections on the performance of teachers considering the most varied

contexts and focus of study. In Table 2, we present the reference context of the authors' work or study and the training perspective evidenced in the analysis.

Table 2 - Reference context and the training perspective evidenced in the texts.

Context	Total	Technique	Practice	Critique
Early Childhood Education (EI)	17	T37	T1, T2, T12, T20, T27, T31, T32, T35	T5, T6, T11, T14, T17, T18, T21, T30, T36
Initial Years - EF (AI)	06		T3, T7, T10, T16, T23	T11
Final Years - EF (AF)	04	T24, T33		T25, T28
High School (EM)	05	T38	T8, T29	T4, T9
License in math*	04	T15, T22, T26, T34		
EJA and General	02	T13	T19	
TOTAL	38	9	16	13

* Texts produced by academics, however, are accepted in the Professor category.

T11 refers to work focused on two different stages of education – EI and AI. In T4, T9, and T13, the focus is not directly related to teaching or teaching practice, but to applied research that generates knowledge for the technical and technological areas. What caught our attention was the fact that (future) teachers, undergraduate students in mathematics, direct their studies towards the production of pedagogical didactic material focused on AI (75%) and not on the area of (future) performance - AF and EM. Furthermore, in these, the technical perspective of training is evidenced.

We identified that most of the published texts come from EI teachers who come to FMat to socialize practices resulting from their teaching practice. These teachers tend to build their texts closer to the critical and practical perspectives and further away from the technical perspective. The context with the highest percentage close to practical rationality comes from works whose focus was on AI. Finally, we emphasize that the teachers who present work in the professor category at the FMat are those who work (and/or study) in the stages closest to the initial stages of Basic Education and who, for the most part, bring to the FMat the report of a work whose object is the student subject and not the teacher subject. The reason for this is not yet known.

FINAL CONSIDERATIONS

The study analyzed the perspectives of teacher training that can be revealed from the written texts resulting from the works presented in the Teacher category at the Santa Catarina Mathematics Fair. Within this objective, the focus of the analysis was on the reported practice and not on the teacher's subject.

The movement of analysis allows us to affirm that the written texts related to the works presented in the category teacher at the Santa Catarina Mathematics Fair reveal three different perspectives of training: with greater emphasis is the perspective of teacher training in practical rationality (16), followed from the critical perspective of training (13) and, finally, the perspective on technical rationality (9). The discussion of the results allows us to infer that different conceptions about teaching, learning, evaluation, practice, and the role of the teacher are present in FMat, closer to the perspective of practical training and further away from the technical perspective. Perceiving most of the reports as

closer to practical rationality, we indicate a practice guided predominantly by the experience of practice, in which the proposals derive from the perception of what worked in previous years, or from practices reported by more experienced colleagues.

The option to organize the texts into three categories of analysis was made to present them in a categorical way to highlight excerpts that allowed us to identify what perspective of training could be present. Thus, we draw attention to the transience of these results, which are anchored in the theoretical assumptions exposed throughout the text, as well as in the experiences of the authors in the MRFMat. In addition to these, we believe that one of the contributions of this study is to problematize the Teacher category, as well as the perspectives of teacher training that the subjects who are part of the FMat bring implicitly, or explicitly, at the time of writing the report.

A point that cannot go unnoticed is that evidence of the proximity of the practical perspective had already been highlighted in the study by Silva (2014), carried out at another time, with other subjects, as well as with other references, both theoretical and methodological. This makes us wonder: what implications of this evidence are being raised for the Movement? Are these results or are they being discussed or reflected within the FMat? To advance with the problematization, it is suggested to expand the reflections in the FMat evaluation seminars and to provide space for discussion about these themes on the days when the FMat takes place.

One of the implications of the study for the FMat would be to understand the Teacher category, to suggest an indicator of a work profile that can characterize or approach the borders of what is expected in it to encourage both the study of the subjects of learning and the subjects of action, which until then have had little prominence.

As was to be expected in research of this nature, the analytical process made us realize other aspects hitherto unknown to us and which we believe to be interesting objects of further investigation. In the beginning, we expected that these texts in the Teacher category would deal with their learning, the motivations for the choices, both theoretical and methodological, and an analysis of what was successful and what could be modified based on praxis. However, we identified a movement to bring up the learning and formative paths of the students, in a description of the practice carried out, their feelings and attitudes, using a language closer to the vocabulary generally used in the classroom and further away from what usually occurs in a talk to peers. Thus, we believe that it is worth discussing in the context of FMat: what is expected of a job in the Professor category? Does the teacher who participates in the Fair as an exhibitor not perceive himself as a researcher of his practice and/or a subject of learning, or does he/she not believe that this is the space for such a report? Could the FMat objectives be contributing to this? What reasons could be discouraging teachers from reporting in writing their teaching-learning resulting from their involvement in the activities developed? Hence, an important challenge arises of how to make the FMat contribute to the reflection of its practice and that it be made explicit in the reports.

Thus, as a perspective of continuity of this study, others may seek to investigate the convergence between the perspective of formation perceived in the written text and the narrative that the teacher makes of it; understand the professional development processes that can occur through the Fair; in addition to identifying the contributions of FMat to the training perspective it has.

Regarding the limitations of the study, we believe that if the teacher had difficulty in writing, it may be that the text did not show his/her real perspective of formation. Thus, we have to take into account the impossibility of affirming that there is great convergence between this written text of practice and the practice. Despite this consideration, studies like this one are important not only for their results but for bringing to light the power that this writing can have in the dissemination of the works presented at the Fair in terms of time and space. After all, if this writing is also part of the process of participation in the event and is published in the annals to increase the reach of this socialization, it needs to be problematized.

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DECLARATION OF CONFLICT OF INTEREST

There is no conflict of interest with this article