Education in reverse: problematizing *inverted symmetry* in continuing education for teachers[I]

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Abstract

This paper seeks to problematize the implementation of the model of teacher education prescribed by the Brazilian educational legislation, through the analysis of a Continuing Education Program, PEC Formação Universitária Municípios (PEC Higher Education Municipalities), held in São Paulo, from 2003 to 2004. The research is qualitative in nature. It included observations within online and offline teaching contexts over 18 months, and the collection of materials of different natures: official documents, field notes, interviews, and work produced by the student teachers, especially the *written memories*. The theoretical framework is based on Bourdieu's theory of the *habitus* and the contributions of his contemporary critics. By investigating the educational processes inherent to the student teachers, we intend to analyze the relations between the learning situations observed throughout the development of the program and how they were appropriated by teachers. The analyzes developed let us state that many of the reflections made by the teachers, in the position of students, originated from a learning process that was unexpected and even ignored by the program. In this work, this process was called educational work in reverse, and put into question the principle of *inverted symmetry*, which guided PEC, and therefore some of the educational fundamentals of the model under consideration.

Keywords

Model of teacher education – *Inverted symmetry* – Continuing education.

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Formação às avessas: problematizando a *simetria invertida* na educação continuada de professores[I]

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Resumo

O trabalho busca problematizar a implementação do modelo de formação docente prescrito pela legislação educacional brasileira, por meio da análise de um Programa de Educação Continuada, o PEC Formação Universitária Municípios, realizado no Estado de São Paulo entre 2003 e 2004. A pesquisa é de natureza qualitativa. Contou com observações em contextos de ensino *on-line* e *off-line*, durante 18 meses, e coleta de materiais de natureza diversa: documentos oficiais, notas de campo, entrevistas, além de trabalhos produzidos pelas alunas-professoras, em especial uma modalidade de trabalho chamada de *escritas de memórias.* O marco teórico fundamenta-se na teoria do *habitus* de Bourdieu e nas contribuições de seus críticos contemporâneos. Ao investigar os processos formativos inerentes à condição de aluna das docentes, intenta-se analisar as relações entre as situações de aprendizagem observadas ao longo do desenvolvimento do Programa e o modo como foram apropriadas pelas professoras. As análises desenvolvidas permitem afirmar que muitas das reflexões feitas pelas professoras, quando na situação de alunas, tiveram origem em um processo de aprendizagem não previsto e até mesmo ignorado pelo Programa. Esse processo, denominado aqui *formação às avessas*, colocou em causa o princípio da *simetria invertida* pelo qual o Programa de Educação Continuada de Formação de Professores (PEC) se orientou e, por conseguinte, alguns dos fundamentos pedagógicos do modelo em análise.

Palavras-chave

Modelo de formação docente – *Simetria invertida* – Educação continuada.

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According to the National Curriculum Guidelines for the Training of Basic Education Teachers (DCNFP) (BRAZIL, 2002), the preparation for the professional practice of teaching, carried out in undergraduate licensure courses in the country, should be guided by three principles: competencies as the organizing axis of the course; research as an array of knowledge about the processes of teaching and learning; and coherence between the education offered and the practice expected from future teachers, whose fundamental assumption is *inverted symmetry*. The fact that future teachers are prepared in a similar place to that where they will work demands consistency between what is experienced by students during the training and what is expected of their role as teachers (Mello, 2000). From this perspective, in the licensure course, learners must acquire, among other resources, both the competencies required for the practice of teaching and those that their students should master when completing basic education. Given this model of teacher education, the present study aims, from a sociological approach, to problematize how these principles were implemented, and more precisely, the relationship between competencies and *inverted symmetry*, in the *PEC Formação Universitária*[1], and examine the implications of this concept for the education provided to student teachers of this program[2].

Throughout the course, it was noted that the condition of students made teachers reflect on the performance of teachers' and students' work, which enabled them to understand various aspects of the behaviors and learning processes of their students, as well as some of their own practices and representations as teachers, especially with regard to attitudes

towards their students and certain activities proposed in class. As many of these reflections arose from certain interactions with the tutor professor (who was present every day with the teachers, just like a 1st to 5th grade teacher would) and certain training experiences, notably the evaluations, the teachers observed, and somehow learned, what they should not do in the classroom, due to the low or inadequate training potential of the learning situations they were experiencing in the program. This educational process, not envisaged in PEC's proposal, was guided by what we call here *inverted symmetry in reverse*, and attracted attention to some impasses that permeate the required coherence and consistency between what we do in training and what one assumes will occur during professional practice.

The research is qualitative, more precisely a case study, which aimed to study the condition of student teachers in continuing education courses (OLIVEIRA, 2009). The data consisted of official documents, workbooks, field notes (taken in an ethnographic way for 18 months), semi-structured interviews with student teachers and pedagogical agents of the Program. Besides this material, there was a set of memories, written as part of the mandatory written activities done by the teachers. The field notes were produced in contexts of online teaching (in the computer lab) and offline teaching (Attendance Class Week), seeking to focus mainly on the activities of four student teachers who accepted to participate in the investigation (BUENO, OLIVEIRA, 2008). The analysis perspective adopted with regard to the processes of school socialization is based on Bourdieu's theory of the *habitus*, problematized by some of his contemporary critics.

The treatment of the issues discussed herein first requires outlining the main features of *PEC Formação Universitária* (PEC Higher Education) and how this program has appropriated the training model in vogue, especially the notions of competence and inverted symmetry. Then we will analyze the realization

1- A special program developed in São Paulo from 2001 to 2008, which aimed at training at a higher level the teachers of the lower grades of primary education and of early childhood education. The second edition, called *PEC Municípios*, was the empirical referent of the research and will be detailed below.

2- Because the overwhelming majority of students in the course were women, we chose to use the feminine gender in the text. In the case of tutors, we chose to keep the generic masculine, since the number of men and women was nearly the same.

of these principles in some learning situations, in order to show and understand the complexity involved in such training processes, as well as the difficulties inherent in planning and implementing licensure courses in this format.

PEC Higher Education: an example of special programs of education for teachers

Used in the empirical research, *PEC Formação Universitária Municípios* (PEC Higher Education Municipalities) was conducted in 24 months, from 2003 to 2004, through a partnership involving several public and private institutions: *Universidade de São Paulo (USP)* and *Pontifícia Universidade Católica de São Paulo (PUC-SP)*, *União Nacional dos Dirigentes Municipais de Educação* (UNDIME), *Secretaria de Estado da Educação do Estado de São Paulo* (SEESP), *Fundação para o Desenvolvimento da Educação (FDE)*, *Fundação Carlos Alberto Vanzolini (FCAV)* and *Fundação da Faculdade de Educação (FAFE)*[3] in the case of the PEC conducted by USP. Aiming to meet the demand for higher education which arose after the enactment of Law No. 9394 of 1996 establishing the Guidelines and Bases of National Education (LDB), the program, defined as a continuing education course of "attendance nature with strong support from interactive media" (São Paulo, UNDIME; FDE; USP; PUCSP, 2003b, p. 13), was offered to tenured teachers of public municipal schools who still had no higher education yet. It was then a full licensure for the early grades of primary education and early childhood education. In programmatic terms, it was designed in harmony with the provisions of the *Proposta de Diretrizes para a Formação Inicial de Professores da Educação Básica em Nível Superior* (PDFIP - Proposed Guidelines

for the Higher Education Initial Training of Primary Education Teachers) (BRAZIL, 2000), one of the main documents that originated and substantiated DCNFP and their model of teacher education.[4]

From an operational standpoint, PEC was developed in buildings of the former *Centros de Formação e Aperfeiçoamento do Magistério* (CEFAM – Centers of Education and Improvement of Teachers) and state schools that had the necessary technical equipment. Each unit, called pole, was specially prepared for the course, with computer labs and rooms equipped for videoconferences, teleconferences and study activities. The workload of the program was 3300 hours, distributed among the following activities: 1) *video conferencing* (virtual classes, which allowed real-time interaction between professor and students); 2) *teleconferencing* (magna lectures, usually with several specialist professors, transmitted via satellite, which allowed the interaction by email and fax only); and 3) *monitored work* (activities that unfolded the topics addressed in tele and videoconferencing, as well as in the workbooks, which were done in the classroom, in the off-line sessions, and in the computer lab, in the online sessions; and the work to be done by the students inside or outside the classroom, individually or in groups in support sessions); 4) *programmed activities* (tasks previously determined by the tutor or advisor to be performed autonomously by the student); 5) *educational experiences* (research work and reflection on teaching practice in the light of theory); 6) *cultural workshops* (activities that aimed to enlarge the cultural repertoire of the student teachers from different uses of reading, writing and various artistic manifestations); 7) *writing memoirs* (autobiographical account of investigative and educational nature about the process of education of student teachers); and

3- In English: University of São Paulo (USP) and the Pontifical Catholic University of São Paulo (PUC-SP), the National Union of Municipal Education Managers (UNDIME), the São Paulo State Secretary of Education (SEESP), the Foundation for the Development of Education (FDE), Foundation Carlos Alberto Vanzolini (FCAV) and the Foundation of the Education School (FAFE).

4 - The pedagogical project of PEC Municipalities (SÃO PAULO, UNDIME; FDE; USP; PUCSP, 2003b) is almost the same as the one of the first edition of the program, offered by SEESP in 2001. Albeit prior to the enactment of DCNFP (2002), it encompasses its educational model, because this was already outlined in the aforementioned PDFIP (BRAZIL, 2000).

8) *development of research and thesis writing*, Bachelor Graduation Thesis (BGT), conducted under the supervision of an advisor designated by the university (São Paulo; UNDIME; FDE; USP; PUCSP, 2003a). PEC also included several activities in the Attendance Week, such as lectures, roundtables, workshops, visits to museums, on campus and other bodies of the universities sponsoring the program, during school vacations. The teaching functions of PEC Higher Education were divided among different pedagogical agents: the *tutor professor* met with the student teachers daily, was responsible for coordinating the course's activities and a part of the evaluation; the *assistant professor* took care of supervision, correction and evaluation of online activities and communicated with students via the internet; the *supervisor professor* interacted with teachers both in in-face meetings and via email and was responsible for guiding the educational experiences, *writing of memoirs* and for the Bachelor Graduation Thesis as well as the correction of such activities and tests of the program. Besides these, the video and tele lecturers performed teaching functions and were responsible for video classes and lectures, respectively.

Once implemented, this structure activated processes previously not present or not made very explicit in other education models, and even in those that were already directed to the continuing education for teachers. One of the processes that drew attention since the field work concerns teachers working as students, because of the simultaneous and continuous experience of playing a dual role: that of teacher and student. Thus, we sought the answer to the following question: what relevance and potentiality can such experience have for teacher education, especially when, attending the course, they are directly linked to the work in the classroom? The interpretations outlined below seek to problematize this question, taking into account the size and centrality that continuing education has acquired in recent decades in the country, similarly to what has happened in many countries as a result of external influences and pressures.

Socialization, *habitus* and teacher education

The theoretical framework of this research is Bourdieu's theory of practice (1984, 2004), in the light of the contributions and problematizations offered in this area by Lahire (2002) and Setton (2002a, 2002b, 2009).

Constructed with the aim of equalizing the tension between structure and action and overcoming the dichotomy between objectivism and subjectivism, Bourdieu's theory of practice conceives the process of socialization of individuals as a result of the "*dialectic of interiority and exteriority, that is, the internalization of externality and the externalization of internality*" (BOURDIEU, 1984, p. 60, emphasis added), which provides for the incorporation of the *habitus*, considered a

> system of durable dispositions, structured structures predisposed to function as structuring structures, that is, as a principle that generates and structures practices and representations. (BOURDIEU, 1984, p. 60-61)

It was the product of material and symbolic conditions of existence of a particular class or social group.

The *habitus*, according to the French sociologist, acts as mediation between objective relations and individual behaviors . It

> makes possible the achievement of infinitely differentiated tasks, thanks to analogical transfers of schemes, which allow solving the problems in the same way. (BOURDIEU, 1984. p. 65)

Practice, in this perspective, is considered the result of the dialectical relationship between a situation and a *habitus*, which prevents seeing it as mere performance of the charges of the objective structure or as the product of the autonomous deliberations of the individual. Thus, in the theory of the French sociologist,

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there is an intrinsic relationship between the *positions* occupied in social space or fields (conceived in a relational way), the *dispositions* (or *habitus*) and the *positions taken* (social practices arising from the dialectic between positions and dispositions). (BOURDIEU, 2004)

Nevertheless, as the analysis of education processes studied was done on the micro social plan and the program in focus does not have the necessary properties to be understood as a field (BOURDIEU, 2004), it was necessary to adapt the tools of analysis to this scale. Therefore, PEC was considered a configuration[5], that is, a network of interdependence which places and conditions individuals in an uninterrupted web of actions, in which they press one another in the processes of socialization and establish relationships with other configurations, in a direct or mediated, explicit or diffuse, voluntary or involuntary way (ELIAS, 2005; LAHIRE, 1997; SETTON, 2002b). By treating socialization in this light, we aim to emphasize that "social beings in relations of interdependence and singular situations, put into circulation or not, can 'transmit' or not, their social characteristics" (LAHIRE, 1997, p. 32-33), especially when it comes to cultural capital and school capital.

Accordingly, the investigation of the practices, representations and educational processes of research subjects was designed from the positions they occupy in the networks of interdependence they participate in, in dialectical relationship with their resources and *habitus*. This is understood as a set of dispositions – a product of not only past socializations, but also of socializations in construction, because of the stimuli to which it is subjected – whose dispositions (schemes of thought and action), which tend to be triggered according to their context of production and updating, predispose individuals to perceive, feel, appreciate and act without heeding with only the built-in and non-conscious memory, which enables them to give meaning to their experiences and to use reflective logic of action. (BOURDIEU, 1984; SETTON, 2002a, 2007)

Based on this conceptual framework, we admit the possibility of using the concept of *habitus* to understand unique individuals at micro social level, in the context of contemporary societies, conceiving *teacher education* as a process of construction and restructuring of both *schemes of action or dispositions of habitus* and the knowledge of the individual (PERRENOUD, 2002). This makes teacher education also a process of self-education because socialization, as a form of education, takes into account both the learning and the internalization of social references and the self-construction of the subject and the reinterpretation of knowledge, through the mediation of the other (SETTON, 2007.) This assumption should be taken into account, especially when it comes to the education of adults, in which one cannot ignore the central role of experience. Experience that, for being the object of reflection, ends up making the adult be the pedagogue of oneself, because, as postulated by Dominicé (1992, p. 167), "knowledge about education comes from the very reflection of those that are educated".

Inverted symmetry and competencies at PEC Higher Education

Following an international movement of the period, the education reform started in Brazil in the 1990s, whose milestone is the LDB, made competencies the axis that structures both basic education and (initial and continuing) teacher education. According to Mello (2000, p. 102), one of the mentors of various experiments that have been structured since then in the field of teacher education,

> It is imperative that the teacher who is preparing to teach in basic education

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5- Elias (1994, 2005) conceives configurations as networks of interdependencies made up of people mutually oriented and dependent on each other, because of socially generated reciprocal needs, which can take various forms, such as families, schools, cities and even nation states.

shows that he or she has developed or can develop, in a solid and full way, the competencies provided for graduates of basic education, as established in Articles 22, 27, 32, 35 and 36 of the LDB and the national curriculum guidelines of basic education. This is an indispensable condition to qualify him or her as capable of teaching in early childhood, primary or secondary education.

According to the author, in this education model, competencies cannot be reduced to abstract principles nor be restricted to legal precepts, since, to have concrete educational effects, they should be mastered by teachers and, therefore, performed in all their work in schools. In her words:

> Nobody facilitates the development of what one had no opportunity to improve in oneself. Nobody promotes the learning of content that one does not master, the constitution of meanings that one does not understand or the autonomy that one was unable to construct. (MELLO, 2000, p. 102)

This assumption highlights the objective and subjective aspects of competence, that is, as a principle codified in the legislation, on the one hand, and embodied in the individual on the other. However, given its relevance in this scenario and its polysemy (LÜDKE; BOING, 2004), it is necessary to inquire how this notion was understood by PEC.

The basic proposal of the Program (São Paulo, UNDIME; FDE; USP; PUCSP, 2003b) uses this concept by Perrenoud (1998, p. 208), for whom

> A competency is an ability to mobilize. It is not a technique or some more knowledge, but an ability to mobilize a range of resources – knowledge, know-how, schemes of assessment and action, tools, attitudes – in order to effectively deal with complex and unprecedented situations.

Such a notion, according to Perrenoud (2002), has three dimensions, consisting of conceptual, procedural and attitudinal knowledge, by schemes of action that mobilize this knowledge and by schemes that do not mobilize any knowledge. These schemes, borrowed from Piaget and Bourdieu, "are all that, in an action, can be transposed, generalized or distinguished from a situation with respect to the following one, that is, everything in common in the several applications or repetitions of the same action" (PIAGET, 1973 apud PERRENOUD, 2002, p. 38). Taken together, they make up the *habitus*, that is,

> a small group of schemes that can generate an infinity of practices adapted to situations which always renew themselves without ever constituting explicit principles. (BOURDIEU, 1972 apud PERRENOUD, 2002, p. 39)

Such schemes (or dispositions) guide both concrete action and the action of thought.

Because from this perspective ,

> knowledge does not guide the mobilization of other knowledge; what guides such mobilization, according to Piaget and Bourdieu, [is called] schemes of action and thought, which make up the habitus of the subject. (PERRENOUD, 2002, p. 73)

It is inferred that competencies can be seen as dispositions of the *habitus* and *professional education*, such as that of the teacher, can be seen as a process of socialization.

In this sense, the way to develop them in licensure courses, requires learning situations that emphasize practice, but without giving up theory (BRASIL, 2001), so that future teachers should build, as students of this course, the competencies that they will use in their pedagogical practice, as well as those that they will have to teach their students as teachers, as recommended by the model of teacher education guided by inverted symmetry.

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However, still under this model, this does not mean mechanically equating their learning experiences in higher education with those of basic education, because what is envisaged is to provide training teachers with a learning experience analogous to that which their students will experience. Thus,

> Understanding this fact highlights the need for future teachers to experience, as students, throughout the educational process, the attitudes, didactic models, capacities and modes of organization that are intended to be achieved in their teaching. (BRASIL, 2001, p. 39)

From this point of view, it is assumed that the licensure course, which is structured through an emphasis on practical training and *inverted symmetry*, turns competencies into socialization principles which tend to be internalized in the form of *habitus*, through the direct or mediated interdependent relationships between professors and students, in the various learning situations of the Program. In this sense, what is at stake at PEC Higher Education, under the notion of competence adopted and the central role that it assumed in the structuring of its curriculum, as indicated by its basic proposal (São Paulo, UNDIME; FDE; USP; PUCSP 2003b), is the (re) structuring of the *habitus* of the teacher, in a relatively short time in terms of training – only two years – in order to prepare him or her to act in unprecedented situations and, thus, cope with the challenges of contemporary school. Is that possible?[6]

Inverted symmetry in reverse

During the implementation of PEC, it was realized that becoming a student in a continuing education course enabled the four teachers followed during the research to bring to reflection certain aspects of the work of

teachers and students. From the relations and possible mismatches between their *habitus* and the learning situations that they experienced, they thought about their own behaviors as students in certain teaching modalities, the reasons for the subversive conduct of some of their students in various situations and certain inconsistencies between the activities prescribed and those performed by the program. It was observed that these processes were based, in contrast to what was expected by the program, on a kind of *inverted symmetry in reverse*, since, instead of teaching in accordance with the learning situations they experienced, the teachers claimed that they would teach in a different or even opposed way to such training experiences. To make these processes clearer, it is necessary to discuss them in the light of some empirical data.

PEC's most questioned type of teaching was videoconferencing, mainly due to its inappropriate use, perceived, for example, in its duration, considered too long, as recorded by Andrade (2007). In this interactive media, the professor lecturer stayed in a generation studio, equipped with a camera, microphone, computer, VCR and document camera, which captured his voice and his image, as well as that of the materials used in class, and transmitted them in real time to five poles of the Program. In those poles, the information was received by a television set, in which the students watched the video class and, through the equipment on the pole (camera, microphone and document camera), they made contact and could talk with both the lecturer and colleagues from other poles.

Most of the time, video conferencing did not meet the expectations of the teachers, as they repeatedly stated, triggering in fact many behaviors similar to those of their students considered disinterested, such as talking with colleagues, doing other activities, leaving the room etc. On the other hand, they also allowed such conduct to become an object of reflection:

6- About such questioning, please see BELLO and BUENO (2005).

[...] Why doesn't this student want to do the activity? Why doesn't he have so much interest? So, you can understand a little how the student feels toward a class, because some classes were unbearable. Some videos made me want to sleep. That's when you remember that sometimes you are teaching a class and some children are asleep. The reactions are sometimes similar. Then you think: "Damn, I were asleep while she was talking, and he is asleep while I'm talking..." (Interview, Lis, 2008)[7]

This reflection, made from the condition of student in the videoconference, allowed the teacher, despite the differences between the two learning environments, to relativize the supposed lack of interest of her student, by appreciating and evaluating the possibility of such behavior being connected to her own actions as a teacher and the characteristics of her own class.

During group activities in the program, the same teacher was able to compare her learning experiences with her teaching practices, considering some aspects of the learning process inherent to the student condition:

As each one has a way of studying, of learning... In a small group, you see how each one took advantage of the course... In the condition of student you see that no one has the same way [of learning] [...] Of all the teaching modalities of PEC, there are those that I like to do and those that I do not... I like to read alone... Today I understand a girl who asks to do... If I assign a group activity, she asks to do it alone. Before I thought that if it was designed for four students, it had to be done by four. And it is only going through the condition of student that you realize certain things... We become aware. (Field note / 2004)

Becoming aware, as symbolization or conceptualization of *pre-reflective schemes of action* (PERRENOUD, 2002), is one of the reactions triggered by the simultaneous experience of the work of teachers and students in continuing education courses because feeling the inherent powers of each of these positions contributes to the understanding of the meanings of certain practices of students and teachers, until then opaque, which may lead to the reorientation of certain ways of appreciating and acting. In the present case, Lis changed her attitude to the organization of group activities due to her experience as a student at PEC. She demanded that certain activities were conducted in groups, and even prohibited performing them individually, as it happened in online monitored work. Realizing that she preferred to do the reading and all the other activities individually, just as one of her students, she began to conduct such activities in a way different from the one she experienced at PEC and until then practiced in their classes. So, now she allows her student to do individually the activity designed for groups.

On several occasions, the decisions made by of the tutor professor were also questioned by the student teachers. One of the questionings concerned the way the professor led discussions about the readings required by the program during the sessions of the offline monitored work. According to them, the tutor professor did not take into consideration the opinion of some students: "She (the tutor) does not take advantage of what arises at the time of class. A teacher brought a subject, the other brought another, she does not resolve it."[8] Given these experiences, this student teacher insisted that she sought not to do with her students what she did not like people to do to her:

Everything they did to me, which made me feel bad during my school life and even at

8- Second group interview conducted with the student teachers in 2004, under the distance Project *Between the In-face and the Virtual: education, reading and writing of teachers*. Sao Paulo: FEUSP / CNPq (Bueno, 2003).

7- The names used are pseudonyms.

PEC, something, some attitude, practice, which made me not feel well, something, I did not repeat with my students. I said, "I will not do it with them if I'm feeling how bad it is." If I find it bad as an adult, they will find it even worse because they're so young. (Interview, Violeta, 2008)

Thus, when facing such experiences again at PEC, during discussions on the readings conducted by the tutor, Violeta could feel and interpret them as a teacher in the condition of student, from the *inverted symmetry in reverse*, and act differently in her class, aiming to consider the voice and the points-of-view of all students in order to avoid the situations she had gone through.

The conflicts in the class, which was composed of 15 student teachers, also gave rise to similar educational processes. On occasion, there was some friction between some of them. Such friction, according to reports, arose after the first test and was manifested mainly in the sessions of offline monitored work, during the discussions about the texts read. Lis, who got the maximum grade in that evaluation, felt personally affected by some colleagues who insinuated that she had been favored by the supervisor of the class, who, besides being responsible for correcting the tests, was the educational coordinator of the school where she worked.

These conflicts not only contributed to the division of classmates in about three groups, but also affected other students, making some of them cease to participate in the discussions, both because of the criticism they received from certain colleagues and for fear of receiving new criticism if they participated in the debates again. Regarding this issue, the accounts made it clear that after these episodes there was a differentiation between the student teachers, creating a sort of hierarchy and rivalry between them and their groups. Moreover, it became evident that the discussions, because of the permanence of conflict, no longer had the educational potential which they had before.

In the context observed, the tutor was often called by the student teachers to mediate these more open conflicts. However, as they were adults, he refused to play that role because, from his point of view, they should know how to manage such situations without his help. Moreover, he believed that his role in the program did not include the resolution of problems of this nature. Faced with this impasse, one of the student teachers began to question the role of the tutor, who, somehow, was seen as an educator, and hence as someone responsible for these issues too.

> This mediation is not good enough. [...] Because I think it's a personal thing that could have been worked on. No one can please everyone, so I cannot say, "Look, you are the most important group" and then turn to the other and say, "You are the most important group, no longer you guys." I cannot. (Interview 2, Margarida, 2004)

Margarida's questioning about the tutor's attitude was more serious. Given the presentation of the Bachelor Graduation Thesis (BGT), at which time they would receive a visit from the general coordinator of one of the universities sponsoring PEC, the student criticized the tutor's attitude because he had established that, at the time the coordinator arrived, there would be an interruption in the work dynamics, regardless of who was giving the presentation. Such stop aimed to allow the student teacher with greatest ease to present the BGT, according to the tutor's evaluation, to begin her presentation:

> "And when she arrives, Jane Doe starts." So I think that's not the way to go [...] If we are adults and it happens, it is much worse with our students, who are small children [...] So, I saw that the role of the teacher... that you are the example, you must be aware of this and try to be very fair. (Interview 3, Student Teachers, 2004)

Seeing the professor as an example, therefore, as an educational model, this student teacher began to reflect on justice and discrimination in the teacher-student relationship, from the way the tutor of her class led the presentation of the BGTs at PEC. For her, this attitude reveals certain contempt for those who were not so good at making oral presentations of their work.

Carvalho (2004, p. 102) considers that,

[...] by being a fair teacher, we teach the value and the principle of justice to our students, being respectful and demanding that they are so, we teach respect, not as a concept but as a principle of conduct.

We can be stated that it is in the interdependent relationships between the students and the tutor, permeated by fair school practices, that the teacher education guided by this principle is achieved, since

[...] any competence appears twice along the individual's experience (both adult and child) on the interpsychic level once and a second time, later, on the psychic level. (LAHIRE, 1997, p. 64)

However, as the *ethos* of the student (valuing dimension of the *habitus*) was conflicting with the "example" glimpsed in the tutor's position, her performance as a teacher could only occur in reverse of her educational experience.

In the case of evaluation, that process was also noticeable. If we admit that the concept of Ubiratan D'Ambrosio, present in the workbook used in the course can be taken as representative of the program, then

A *proper evaluation* should be focused on students as individuals, analyzing and drawing attention to their mistakes very carefully to avoid humiliation before their colleagues and their disenchantment with their own learning. Assessment is a great teacher's aide to guide his or her pedagogical action. It allows adequately motivating students and defining what content is best adapted to their interests. But this requires teachers to stop demanding retention of contents and to free themselves from the misconception that the program should be fully complied with and in the established order. (São Paulo, 2004, p.1161, emphasis added)

Furthermore, according to PEC's basic proposal,

Observing inverted symmetry, evaluation is [...] an experience that the teacher lives as a student and a content of the program with which s/he will learn principles and methods of evaluation of learning, which s/he should apply in his/her own classroom. (São Paulo, 2004, 2003b, p. 18)

However, what one observes, according to the reflections of one of the teachers, is the inconsistency between the theoretical evaluation model conveyed by the program and the one put into practice:

I expected to be evaluated in a comprehensive manner, considering all the skills that I have, the knowledge I bring, the arguments that I used to justify and debate the discussions proposed. I realize that I was evaluated only by means of a written exam, just like throughout my school life. This first PEC evaluation aimed only to verify the contents acquired by the students. Given this new teaching proposal, which includes new strategies and tools for learning and proposes a change in teaching practice (ineffective), it is not surprising that the assessment was conducted in such a traditional way. (Memories n. 2, Violeta)

Given this scenario, what about the consistency demanded by *inverted*

symmetry, carried out on these occasions? The evaluation experienced by the students during the tests, for example, was not based on the assumptions made by PEC, and even contradicted them. However, it made no sense for the teachers, according to their set of dispositions and the appropriation that they made of the program's concept of evaluation, to have to teach according to what they experienced in practice. So that they could employ in the teaching work what PEC proclaimed in its discourse, the training would have to be guided by *inverted symmetry in reverse*. But would that be possible? A plausible answer to this question requires first a few considerations.

Inverted symmetry, competencies and training in reverse

According to Perrenoud (2002), teacher education necessarily requires the appropriation of knowledge, building competencies and the constitution of a professional *habitus*, because what is at stake in teaching is the ability to mobilize a range of resources to deal with the challenges present both in school everyday life and in the classroom. For this reason, licensure courses should emphasize, without neglecting the transmission of content, the internalization of schemes of action, among which are competencies, whose mastery enables the teacher to deal with school situations in a more cunning way.

To this end, according to Perrenoud (2002), competence development requires, on the one hand, appropriate learning situations operating as an intensive training able to create the objective conditions for the occurrence of internalization and stabilization of these action schemes, and, on the other hand, that educators seek to articulate the knowledge with such dispositions because possible teachers' difficulties in using the knowledge they have acquired are due to the inability to mobilize them during action. Thus, the "formation of *habitus* should be the project of the whole

institution, the obligation of all educators." (PERRENOUD, 2002, p. 83)

As competencies act as "mediation between here and now (place of training) and other spaces (the classroom)" (Perrenoud, 1993, p. 105), the success of the model of teacher education in the country depends on the quality and consistency of the learning situations that students experience during their education, since learning generated in this process, according to *inverted symmetry*, will enable future teachers to put into practice what they seized when acting as teachers.

In PEC's case, considering some of the competencies laid down in its basic proposal, it was possible to notice several inconsistencies in the structuring of certain learning situations, which leads us to ask: what is the effectiveness of the experience related to building the capacity to guide oneself "by consistent epistemological assumptions" (SÃO PAULO et al., 2004, 2003b, p. 10), when one disregards this educational principle when organizing certain activities, such as what occurred during the evaluations? How could the tutor's attitude, with regard to the construction of the ability to "solve concrete problems of teaching practice and school dynamics" (SÃO PAULO et al., 1993, 2003b, p. 10) and to "guide their methodological and didactical choices and decisions by ethical principles" (SÃO PAULO et al., 1993, 2003b, p. 09), contribute to building such competencies, since he used to escape from the resolution of conflicts between the students and, even though unintentionally, discriminated against some of them in certain activities?

These questions evidence the obstacles to the implementation of the current model of teacher education at PEC and make explicit the tutor professor's difficulties to put into practice the competencies demanded by the program, which, in turn, leads us to the question that gave rise to these considerations: how could the *inverted symmetry in reverse* contribute to the building of competencies?

Because PEC is at the same time a course of initial and continuing education for in-service

teachers, the educational process triggered there addressed more the restructuring of the professional *habitus* than its construction. It also allowed student teachers to simultaneously hold the positions of students and teachers and to feel the social forces related to each of them, and, thus, to relive the experiences related to studying and to reflect on the difficulties in teaching and learning processes.

In this sense, because the students had already been teachers for several years and had values, habits, schemes and more ingrained representations regarding teaching work, or possessed a professional *habitus* engendered mainly in the normal course of secondary education and in the school work environment, the development of certain competencies aimed by PEC could only be achieved in some cases if certain schemes of thought and action of the teachers were disabled and/or restructured. Moreover, as different conditions of existence, by imposing "different definitions of the impossible, possible, probable or of the right", produce dissonant *habitus* and thus "make some feel as natural or reasonable practices or aspirations that others feel as unthinkable or scandalous" (BOURDIEU, 1984, p. 64), the student teachers, when faced with the training provided by PEC, had more resources to adhere to, reject or selectively assimilate what they were provided with.

Moreover, as the forces which the student teachers were subjected to in the position of students were different from those that put pressure on them when they were in the position of teachers, the dispositions activated in each position tended not to be the same. This process, coupled with a certain mismatch of the *habitus* in relation to PEC's configuration, contributed to the "awareness of an isolated scheme or of a portion of the *habitus*" (PERRENOUD, 2002, p. 155) by making apparent to the teachers several personal and professional aspects of their practices and representations that had previously gone unnoticed.

If we assume, with Perrenoud (1993, p. 109), that the formation of professional habitus occurs from the "*interaction between experience, awareness, discussion [and] the involvement in new situations*" (italics added), then we can say that such PEC configuration properties, without having been orchestrated for this purpose, ended up creating a context capable of stimulating the self-education present in the socialization process. This is because, from the perspective of the sociological theory adopted, practices and representations stem from a dialectical relationship between the position that the individual holds in the configuration, his or her set of knowledge and action schemes and his or her reflective ability, which gives him or her a relative autonomy in the face of the pressures of the context.

For this reason, teachers' reports suggest that, when confronting, for example, the role model of the tutor, the principles of assessment used and the low attraction of videoconferencing to other references present both in their professional *habitus* and in the very discourse of the Program, they ended up, in the process, criticizing and reconstructing such experiences, appropriating, reflectively, in a different or even opposite way to the models conveyed by the education offered on such occasions. If these analyzes are not mistaken, education based on the *inverted symmetry in reverse* would be processed through the self-education of teachers. This type of education would lead, taking advantage of tensions relating to the simultaneous exercise of the teachers and student work, of the prior education and of reflective ability, to work of appropriation of new socializing experiences that could incite the restructuring of their *habitus* and, thus, the mastery and/or consolidation of the targeted competencies. This is what was called *education in reverse*.

Nevertheless, corroborating previous studies (BUENO, 2006; ANDRADE, 2007), the analyzes we developed show that PEC took very little advantage of the reflections carried out by the student teachers, in flagrant contradiction with the discourse of valuing

teaching practice, present in the pedagogical proposal of the program.

Despite dealing with continuing education and, therefore, with adult education, this aspect was neither a principle nor a guiding axis of the proposal. As a consequence, it set aside two fundamental data in the education of teachers who are already practicing their profession: the experience of life and the reflection about the experience, in spite of the discourse and the call to "write memories"[9]. The course did not sufficiently value the reflective capacity of teachers, by not considering that, as adults, this reflection operates at the vertex of a vision that is both retrospective and prospective (DOMINICÉ, 1992). They observe and reflect on the past, designing the future. Although not encouraged, this ability to some extent allowed teachers not only to deal with the inconsistencies of the program but also not to perfectly fit the proposed model of teacher education, guided by *inverted symmetry.*

This inversion also resulted from a misconception of practice adopted by the Program. Indeed, the pedagogical proposal of PEC suggests that the practice of teachers was referred only to what they performed in their classrooms, as teachers, and not to what they practiced in the classrooms and virtual rooms of the Program as students. It is, thus, an ambiguous conception of what it is to be a teacher and to be a teacher in training (BUENO, 2010), an aspect that in our view contributed to generate and/or emphasize the remaining ambiguities of the Program.

Given this scenario, the impasses of the model of teacher education guided by DCNFP and implemented by PEC, mainly due to the consistency required by the inverted symmetry between what we do in education and what is expected of the teacher in teaching are evident. In this sense, if undergraduate licensure courses do not adequately consider students' reflective ability and experiences, the mastery of competencies by all teacher educators and the organization of learning situations by the same principles that guide the organization of basic education, the necessary conditions for building and/or restructuring the dispositions relating to the competencies established by the current education model are unlikely to be created. This would ultimately compromise the formation of the intended professional *habitus* and the expected "fine tuning" between these two levels of education.

9 - Regarding the criticism of this practice in courses for large audiences, please see BUENO (2006).

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