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## PEDAGOGICAL REASONING AND ACTION OF PROFESSORS OF NURSING: EXPRESSIONS IN DIFFERENT EDUCATIONAL CONTEXTS

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### ABSTRACT

**Objective:** to report sources of knowledge base for teaching, categories of knowledge base for teaching and phases of pedagogical reasoning and action of professors of higher education in Nursing in public and private universities in the South region of Brazil.

**Method:** a collective study of instrumental cases with a qualitative approach. The cases involve the pedagogical reasoning and action of two professors of Nursing. Data collection incorporated documents, interviews and observation analyzed using the constant comparative method. The analysis gave rise to two metacategories, termed public case and private case, and their transversal axes: relationships between sources and knowledge base for teaching, relationships between categories of knowledge base for teaching, and relationships between knowledge base for teaching and the Model of Pedagogical Reasoning and Action.

**Results:** there are distinct relationships between sources, knowledge base for teaching and phases of the Model in the cases' pedagogical reasoning and action.

**Conclusion:** emphasis is placed on hierarchization and linking in the relationships between Shulman's constructs and encouragement to reflection, and broadening of the sources of knowledge base for teaching as a source of lecturer training is suggested.

**DESCRIPTORS:** Professors. Nursing. Higher education. Universities. education, nursing.

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## AÇÃO E RACIOCÍNIO PEDAGÓGICO DE PROFESSORAS DE ENFERMAGEM: EXPRESSÕES EM DIFERENTES CONTEXTOS EDUCACIONAIS

### RESUMO

**Objetivo:** relacionar fontes de conhecimento base para o ensino, categorias de conhecimento base para o ensino e fases da ação e raciocínio pedagógico de professoras de ensino superior em enfermagem em universidades pública e privada da região Sul do Brasil.

**Método:** estudo coletivo de casos instrumentais com abordagem qualitativa. São casos a ação e raciocínio pedagógico de duas professoras de enfermagem. A coleta de dados incorporou documentos, entrevistas e observação analisados pelo método das comparações constantes. A análise originou duas metacategorias, denominadas caso pública e caso privada, e seus eixos transversais: relações entre fontes e conhecimento base para o ensino, relações entre categorias de conhecimento base para o ensino, e relações entre conhecimento-base e Modelo de Ação e Raciocínio Pedagógico.

**Resultados:** há relações distintas entre fontes, conhecimento-base e fases do Modelo na ação e raciocínio pedagógico dos casos.

**Conclusão:** destacam-se a hierarquização e encadeamento nas relações entre os construtos de Shulman e sugere-se o estímulo à reflexão e a ampliação das fontes de conhecimento-base como meio de formação docente.

**DESCRIPTORIOS:** Professores. Enfermagem. Ensino superior. Universidades. Educação em enfermagem.

# ACCIÓN Y RACIOCINIO PEDAGÓGICO DE PROFESORAS DE ENFERMERÍA: EXPRESIONES EN DIFERENTES CONTEXTOS EDUCACIONALES

## RESUMEN

**Objetivo:** relacionar fuentes de conocimiento básico para la enseñanza, categorías de conocimiento básico para la enseñanza y fases de la Acción y Razonamiento Pedagógico de profesoras de enseñanza superior en enfermería en universidades públicas y privadas de la región Sur de Brasil.

**Método:** estudio colectivo de casos instrumentales con abordaje cualitativo. Son casos la acción y raciocinio pedagógico de dos profesoras de enfermería. La recolección de datos incorporó documentos, entrevistas y observación analizados por el método de las comparaciones constantes. El análisis originó dos metacategorías, denominadas caso público y privado, y sus ejes transversales: relaciones entre fuentes y conocimiento básico para la enseñanza, relaciones entre categorías de conocimiento básico para la enseñanza, y relaciones entre conocimiento base y Modelo de Acción y Razonamiento Pedagógico.

**Resultados:** existen relaciones distintas entre fuentes, conocimiento base y fases del Modelo en la acción y raciocinio pedagógico de los casos.

**Conclusión:** se destacan la jerarquización y encadenamiento en las relaciones entre los constructos de Shulman y se sugiere el estímulo a la reflexión y la ampliación de las fuentes de conocimiento básico como medio de formación docente.

**DESCRIPTORES:** Profesores. Enfermería. Enseñanza superior. Educación em enfermeira.

## INTRODUCTION

In teaching, through reflection, the professor mobilizes a set of sources and knowledge base for teaching which are articulated in what Shulman<sup>1</sup> terms the Model of Pedagogical Reasoning and Action (MPRA). The MPRA, in the phases of comprehension, transformation, teaching, evaluation, reflection and new forms of understanding, expresses a mosaic which is peculiar to each professor, as its construction is related to a distinct access to sources of knowledge base for teaching such as academic training, knowledge acquired through practice as a lecturer, didactic structures and materials and the scientific literature.<sup>1</sup> Regarding sources, Tardif<sup>2</sup> indicates, furthermore, nominating sources besides those proposed by Schulman<sup>1</sup>, one's experience as a student and one's professional experience.

In Shulman's<sup>1</sup> proposal, the MPRA is articulated not only with the sources, but also with the seven categories of knowledge base for teaching: content knowledge, general pedagogical knowledge, curriculum knowledge, pedagogical content knowledge, knowledge of learners and their characteristics, knowledge of educational contexts, and knowledge of the objectives, aims and historical-philosophical values. Commencing from a didactic point of view, Shulman<sup>1</sup> presents the sources, categories of knowledge base for teaching, and phases of MPRA as disassociated, but the fact is that these are articulated in the professor's pedagogical practice and end up by saying plenty about the process of reflection which is undertaken.

There is a close relationship between MPRA and reflection. Starting with the connection between sources, knowledge base for teaching and MPRA, one can say that the distinction in the expression of the phases of the MPRA, in each professor's practice, does not occur only as an issue of access to sources,

which in their turn hinder the development of knowledge base for teaching. The main distinction between professors is in their capacity to reflect. For example, two professors with access to training in the *stricto sensu* modality will develop distinct knowledge base for teaching, not because of greater or lesser access to the sources, but through the process of reflection which they carry out in teaching.

The professor's manifestation of the understanding which she has regarding teaching and learning, teaching objectives, the roles of students and professors is a basis for reflection in the action, when in the transformation, the professor selects pedagogical resources based in the same understanding. In the teaching, on the other hand, there is reflection regarding the action, when, in the materialization of the choices reflected in the previous phases, there is a new reflection which adjusts the resources to the aims proposed for the situation; in the evaluation, when one reflects on what was achieved and what needs to be reviewed; and in the phases of reflection and new forms of learning, there is reflection on the reflection in action, placing the situation in a theoretical framework and learning with the experience.<sup>1-3</sup>

What one observes in the practices of professors of Nursing is, therefore, a hybrid set of sources and knowledge base for teaching, brought together in a diverse way by the movements of reflection carried out by the professors: reflection in the action, reflection on the action and reflection on the reflection in the action,<sup>3</sup> which makes each professor's pedagogical reasoning and action unique. Unique, as they bring together multiple sources and configure multiple categories of knowledge base for teaching which, on being mobilized by the professor's reflection, become tangible in the MPRA.

Besides the individual process of reflection undertaken by the professor, we believe that the

context where this reflection is undertaken influences this reflection's reach and extent, and it is within this perspective that the present study arose, undertaken with two professors of higher education in nursing in public and private universities.

Considering the relationships between sources, knowledge base for teaching and MPRA, and taking into account the reflection involved in the pedagogical reasoning and action by each professor, but also the contexts where this is developed, the following question was presented: what are the relationships observed between sources of knowledge base for teaching, categories of knowledge base for teaching and phases of the Model of Pedagogical Reasoning and Action in the pedagogical practice of professors of nursing from public and private universities?

Based on the study of two instrumental cases, therefore, this text aims to relate the sources of knowledge base for teaching, categories of knowledge base for teaching and phases of pedagogical reasoning and action of professors of higher education in nursing in public and private universities of the South region of Brazil.

## METHOD

This manuscript is an excerpt of a collective case study<sup>4</sup> with a qualitative approach, titled "Pedagogical reasoning and action of professors of nursing in different educational contexts", approved by a Research Ethics Committee under Certificate of Presentation for Ethical Appreciation (CAAE) N. 32937214.2.0000.0121.

In all, two instrumental cases were investigated, namely, the pedagogical reasoning and action of two professors of nursing from public and private universities of the South region of Brazil. As its theoretical framework, apart from the MPRA, the study had the constructs of sources of knowledge base and knowledge base for teaching,<sup>1</sup> Tardif's concepts of social and experiential knowledges,<sup>2</sup> and Schön's concepts of reflection, reflexive conversation and experiment.<sup>3</sup>

To identify the cases, the first aspect considered was the definition of the study locale. As we understood there to be distinctions between institutions of higher education in Brazil which depend on the geographical region, we intentionally highlighted as an inclusion criteria the choice by geographical region, where public and private universities are present in the same city or in neighboring cities. We also emphasized as a criteria: to be a university which had had nursing courses for over 10 years. Taking these criteria into account, the two universities participating were selected, one of

which is a public federal university, and the other a private community university, running courses in nursing recognized for 40 and 35 years respectively.

Having defined the study locale, in March 2014 we contacted, using the emails available on the universities' websites, the coordinators of the courses in nursing which had been intentionally selected. The initial contact with the coordinators aimed to identify the school's interest in the study and to arrange an initial conversation to explain the objective and obtain consent in order to carry it out. With consent conceded, the next proposal was also to interview the coordinators, to achieve three objectives: to bring together the first set of information on the study locale, to request the course's pedagogical political project, and to identify the cases. This interview was held in April 2014.

We emphasized the coordinators as the definers of the cases due to understanding that, because of their position, they have a global vision of the professors of their course. As we were interested in the educational context and its potential influence on the pedagogical reasoning and action, the manifestation of recognition of the pair in a management position over a professor with expertise of the pedagogical proposal was an indication that it would be a case which matched the study objectives. This being the case, as well as talking about the course and the university, during the interview the coordinators identified the cases upon the request that, taking into account the course's curricular proposals, they should mention a professor who, having been in the university for certain length of time, in their opinion, would know it clearly and, through her practice, would contribute to its implementation.

When asked to indicate professors who would satisfy these inclusion criteria, the coordinator suggested names and also provided email addresses for contact. Emails were written to the two professors selected by the coordinators, to arrange an initial conversation to speak about the study objective and the data collection process, with the aim of inviting them to participate. Both accepted to arrange a first meeting and, after the intention and data collection process had been explained, also accepted to participate in the study, confirming their acceptance by signing the terms of free and informed consent. For purposes of anonymity, we will call the professor from the public university "public case", and the professor from the private university, "private case".

Public case had been a professor in higher education for 32 years, had a PhD in nursing, was a State employee working exclusively for the department of nursing and worked in the introduc-

tory courses in nursing and courses on qualitative research (invented names), on the undergraduate and postgraduate courses, respectively. She worked in teaching and research, and was regarded as an expert in her field. Private case had been a professor in higher education for 16 years, had an MA in nursing, was an adjunct professor, and also worked as a staff nurse in parallel with her activities as a lecturer which she undertook in the study locale and in another teaching institution. She did not have specific subjects to teach. During the study, she taught the nursing course in first-aid (invented name), a subject with a multidisciplinary character in the presence of students from other areas. She also taught on the dentistry and cosmetology courses.

During the first contact, the planning of the data collection was explained, combined with the first interview, and the teaching plans of the courses which they taught were requested. At this point, the courses to be observed in each case had already been identified. In the public case, two courses, one undergraduate and one postgraduate, both in the nursing course, and in the private university, one undergraduate course with a multidisciplinary character.

Collection with the cases took place in April 2014 to July 2015 and was arranged by phases. In the phases, the triangulation of documents, interviews and observations was used, organized in three phases of collection. Each phase involved the sources to a greater or lesser extent. Phase 1 involves the analysis of documents and interviews. Course projects were analyzed, interviews were held with the coordinators and interviews 1 and 2 were held with each case. Phase 2 involved interviews and observation. Interviews 3 and 4 were held with each case, as well as a further two in-depth interviews; also, sessions of the courses taught were observed. Finally, phase 3 involved validation of the analysis by the cases, and analysis and undertaking interview 5 with the cases.

The interviews with public case totaled seven hours 30 minutes, and those with private case, eight hours eight minutes. The interviews lasted a minimum of one hour and 20 minutes, and a maximum of two hours. They were recorded with a voice recorder and always held in a place chosen by the participants. The content was transcribed and sent for validation.

Regarding the observations of public case, six undergraduate classes were observed each lasting an average of one hour, and nine classes/sessions with the postgraduate students each lasting an average of three hours, totaling 15 sessions observed and 33 hours of observation. In the case of private case, 17 classes/sessions of, on average, one hour

were observed, totaling 17 hours of observation. Part of the classes observed was recorded on video. Some classes were not recorded at the choice of the students, and others, at the choice of the researcher. Nevertheless, the sessions are recorded in a field diary, which was maintained throughout the observation period for recording operational, methodological and theoretical notes.

Data analysis was undertaken during the data collection process and was guided by the constant comparative method, part of Grounded Theory<sup>5</sup> and organized on the Atlas . ti software, version 7.1. In brief, the process has three stages: open coding, axial coding, and selective coding. At the end of the open coding, public case had 154 codes, and private case, 142. In the axial coding, these codes were later grouped in the following categories: sources of knowledge base for teaching and knowledge base for teaching and phases of the MPRA, previously determined by the theoretical framework, and made up 28 and 27 codes, respectively.

In the phase of axial coding, the codes organized in the open coding were arranged in four categories: sources of knowledge base for teaching, knowledge base for teaching, MPRA and the context. The first three categories will be presented in this text, containing 21 codes. In the phase of selective coding, the categories were articulated in two meta-categories termed public case and private case, meta-categories which have the following transversal axes: relationships between sources and knowledge base for teaching, relationships between categories of knowledge base for teaching, and relationships between knowledge base and MPRA.

In order to preserve anonymity, the records presented in the results section will refer to the case (public case or private case), to the source (whether this was interview, observation or document) and the order in which they were inserted and coded in Atlas . ti.

## RESULTS

### Public case: relationships between sources and knowledge base for teaching

Public case's pedagogical reasoning and action presented – apart from three of the four sources of knowledge base – the sources of experience as a student, family and socialization with peers, supported in Tardif's understanding<sup>2</sup> on experiential knowledge. Regarding the source of experience as a student, emphasis is placed on the doctorate course, where she made contact with other literatures, particularly from the area of education, and in which she had contact

with nursing in an international ambit, awakening her perspective to this aspect of the category. These sources influenced her general pedagogical knowledge and her knowledge of the educational context.

To the source of the family, she attributed a sense of commitment, responsibility and focus on the career, learned from her father, whose influences were part of the knowledge of the objectives of public case that students need to be committed to their learning and to be responsible, and the way in which she viewed her students and constructed her knowledge of the students based on this perspective. To her academic training, on the other hand, she attributed most of her content knowledge, which also had a relationship established with the source of knowledge acquired through her practice as a lecturer.

The scientific literature, in particular the literature related to training and education, influenced how the professor understood teaching and learning in the ambit of nursing, influencing her knowledge of curriculums and of the objectives. The socialization with peers, formal and informal exchanges with colleagues of information on the academic organization or even teaching strategies known or experienced, influenced the pedagogical content knowledge and the knowledge of the educational context.

Some sources were shown to be more significant than others in supporting the categories of knowledge base. Emphasis is placed on the sources of scientific literature and knowledge acquired from the practice as a lecturer, supporting more than two categories of knowledge base.

### **Public case: relationships between categories of knowledge base for teaching**

As with the sources, there is a certain hierarchization in the relationships between the categories of knowledge base. That is to say, there are categories of knowledge base for teaching which are more influential than others in the ambit of public case's pedagogical reasoning and action. There is the linking of four categories of knowledge base for teaching in public case's reasoning and action: general pedagogical knowledge, knowledge of the objectives, of the curriculum and pedagogical content, in that order.

The general pedagogical knowledge was a starting point for the establishing of relationships and incorporating the other categories, providing the indication that the way of understanding can determine the way of teaching. Due to a specified understanding regarding teaching and learning, a characteristic of the general pedagogical knowledge,

public case understood the content as a means, which does not mean that this was not undertaken in her practice, but, rather, that the centrality possibly was not to be found in it: [...] *I use the content to develop skills, attitudes and values. Do you understand? I use the content: but if they didn't learn this... If I can manage to awaken responsibility and commitment in the student, he carries on* (Public case, Interview 2, 4:125).

With public case, one can observe that general pedagogical knowledge as a starting point, and not content knowledge, was established in the planning of objectives, which sometimes go beyond that stated in the curriculum. That is, the way that the case understood that the student should behave in that course, in that situation, ended by going beyond the content *per se*: [...] *professor: 'if you use this word in a subject, and get a bad grade, you're going to have to understand why you got a bad grade.'* Student 01: 'No...' Professor: 'No? But if it were written in the book, would it be true? A person with a doctorate doesn't do this, right? So why did you use this word? What meaning does it have there? You have to have an argument, right?' (Public case, Observation of the postgraduate course on 19.08.2014, 29:2).

### **Public case: relationships between knowledge base for teaching and phases of the Model of Pedagogical Reasoning and Action**

The relationship which stood out the most was that established between the general pedagogical knowledge and the phases of comprehension, transformation and teaching, visualized through the pedagogical content knowledge: [...] *Well, I think that the questions and answers are strategies whose starting point is exactly from the recognition that the student has a knowledge base, he knows the subject, he is not a blank page, as Paulo Freire says. Based on that, understanding what he already knows, I can also see what he needs, what he needs to understand better, those difficulties in understanding that he has and that I can help him with* (Public case, Interview 3, 19:59).

The transformation phase in the ambit of public case's pedagogical reasoning and action was also related to knowledge of learners and their characteristics, and also of the educational context, as the limitations on resources, time and structure had a negative influence on the choice of teaching resources and approach: [...] *The first thing that I always do when I begin a course, here, and begin in anywhere that I go, is to ask: who are you, what history do you have, what familiarity do you have with the topic?* (Public case, Interview 2, 4:63).

In his proposal, Shulman<sup>1</sup> presented the six phases of the model in a sequential manner in a circle,

suggesting a process. Nonetheless, what was observed with public case is that there was greater communication between the phases than in the structure originally presented, and not only in a sequential manner. For example, the understanding gave rise not only to the transformation and to the transformation of the teaching; the understanding is in the teaching and in the transformation, in the evaluation, as well as influencing the new way of understanding.

### **Private case: relationships between sources and knowledge base for teaching**

Considering the relationships between the sources and the categories of knowledge base for teaching in private case's pedagogical reasoning and action, it was observed that the sources of professional experience and knowledge acquired through practice as a lecturer were more significant. Furthermore, in the relationships between categories of knowledge base for teaching, one can see that these sources also support the more central categories of pedagogical reasoning and action.

The experience as a student as a source of knowledge was presented as related to the development of pedagogical content knowledge, as private case selected pedagogical resources based in her understanding of what was better for herself in terms of learning.

Regarding professional experience, this formed the basis for the content knowledge, that is, what should be taught, and the mastery of what is taught supported in private case's daily experience as a staff nurse, which experience also provided her with an empirical understanding regarding the training conditions that the students have had in the schools, a knowledge of the educational context, which supported her knowledge of the objectives, which was declared as *training the nurses who are in the job market better* (Private case, Interview 1, 3:22).

Regarding the scientific literature, the use of scientific articles, in particular those which suggested – based in evidence – the need for changes in certain conducts or procedures of nursing practice. In relation to the knowledge acquired through practice as a lecturer, this was shown to be related more to the general pedagogical knowledge, as, based on what she planned for the classes and 'tested' in the phase of teaching, it reinforced or excluded certain understandings, while it also – through this source – constructed knowledge of learners, their preferences and characteristics, shaping the expression of the pedagogical content knowledge in the teaching phase.

### **Private case: relationships between categories of knowledge base for teaching**

Private case, in her pedagogical reasoning and action, linked content knowledge, general pedagogical knowledge, knowledge of learners and their characteristics and of the curriculum, the knowledge of learners being the marker of the exploration of her pedagogical content knowledge in the teaching phase: [...] *Because I always ask if it is a group which has quite a lot of experience, whether it has little experience, depending on the situation, I focus on what needs to be worked on most* (Private case, Interview 2, 3:87).

Another relevant relationship between the categories of knowledge base for teaching established in the ambit of private case's pedagogical reasoning and action was between general pedagogical knowledge characterized by private case's understanding that visualization is a central means for learning. This caused her understanding on the choice of the best teaching strategies and pedagogical content knowledge to be expressed in the teaching phase through the use of examples, visualization and demonstration: [...] *This is a chest drain, it's a closed system, this part connects to that part. I show them everything. I remind them that one day they are going to learn about this, and they will already have the image processed* (Private case, Interview 2, 3:40).

### **Private case: relationships between knowledge base for teaching and phases of the Model of Pedagogical Reasoning and Action**

The relationship established in private case's pedagogical reasoning and action is perceived between the phase of understanding and transformation, supported in the general pedagogical knowledge: [...] *So, depending on the situation, which with them is a resource which I didn't use, because there are videos, you know, assistance with childbirth. We have time to use and I used it, but it is a resource that, for me, is also used a lot. As I work a lot with this part – vision – you visualize a thing, the more images I show, for me, I think it is more useful. They absorb this better than they would if you were to stand there counting heartbeats* (Private case, Interview 3, 16:45).

Regarding the knowledge of learners, it is observed that there is a relationship with the phases of teaching and evaluation, which are linked. Thinking about the sources, it is possible to infer that, if the knowledge of learners is related to the phase of teaching and one of the sources of knowledge is wisdom acquired through practice, part of the knowledge of learners is the result of the interaction undertaken in the teaching phase: [...] *In this way, now we are in*

*a practical class, I am here to sort out their doubts, it is just that other people, others at these times are not doing anything. So, the next time, I'm already going to do it like this – I'm going to make you guys prepare a report. Because that is how practical class is, guys. In a practical class, the student has to play their part* (Private case, Observation of undergraduates on 01.09.2014, 38:1).

A relevant and significant relationship in private case's pedagogical reasoning and action is that perceived between teaching and evaluation in the teaching phase. Based on her understanding, constructed with the support in the relationships indicated between the sources of knowledge base for teaching, the professor transformed the content with a view to the teaching. However, in the teaching phase there is not only the expression of the choices undertaken in the previous phases; there is also the adjustment of the initial proposal, based on an understanding of the public to which it is directed.

This being the case, the evaluation phase does not take place only after the teaching phase, but also viewing it, and is not only influenced by the experience of the current teaching, but by previous experiences, suggesting that – in this relationship – the wisdom acquired through practice as a lecturer is the biggest source of support for the knowledge base for teaching. This transposition between teaching and evaluation was fairly striking with private case: [...] *I have class number 5 and 5A, because – depending on how I perceive the group as being – these are not classes with different content, but are classes focussing on different things from the content, so I begin with 5, then we have the break, and I do 5A* (Private case, Interview 2, 3:49).

## DISCUSSION

It was observed that the cases used distinct sources of knowledge base for the teaching<sup>1</sup> as well as personal knowledges<sup>2</sup> and that, when it is a case of using the same sources, they did it with distinct objectives and intensity. We understand that the distinctions in the cases' sources are related as much to opportunities for access,<sup>6</sup> as to the development of the same. The cases' trajectory of training and career, allied with the educational context in which they were inserted, may be the distinguishing factor for access to and use of sources of knowledge base for teaching.<sup>7</sup>

Public case, for example, based her general pedagogical knowledge in the source of scientific literature through the specific use of a theoretical framework from the area of education, possibly influenced by her academic training and by her work as a researcher in the area, while private case's access

to the source of scientific literature in order to update her professional practice was possibly influenced by the fact that she continued to work as a staff nurse.

Regarding this fact, it was possible to observe in the cases that other sources, besides those proposed by Shulman,<sup>1</sup> were relevant for the construction of the pedagogical reasoning and action and must be taken into consideration.<sup>8</sup> The understanding created by the experience in the ambit of the pedagogical reasoning and action cannot be taken only to be the experience that the professor has in the teaching spaces, and the relationship with the students, but must be taken in general. Private case's professional experience<sup>9</sup> as a nurse is striking for the construction of a knowledge base for teaching and of her phase of comprehension. It is a source and must be considered as such, and some reinterpretations of Shulman's proposal<sup>1</sup> already do so.<sup>10</sup>

If experience is related to the use and development of the sources, one cannot consider as relevant only the experience that the cases had in higher education, in distinct educational contexts. In this regard, it is necessary to broaden Shulman's<sup>1</sup> understanding regarding what sources of knowledge base for teaching are, as the author considers sources to be the academic training and discipline and the specialized literature, that the professor accesses after formal education, and the wisdom acquired through practice as a lecturer, and the didactic structures and materials which limit the experience which supports the case' pedagogical reasoning and action for the university.

It is not, however, only ensuring access which should be important, when we think of sources of knowledge base for teaching. If guaranteeing access were sufficient, all PhDs with the same amount of years of training and experience as lecturers would show the same, and full, knowledge base for teaching. As well as access, the development of the source is relevant, and this aspect is not related only to opportunities to access *per se*, but to the professor's ability to reflect in the ambit of the action, as this is who at the end of the day determines the actual use that the source of knowledge has.

Given the sources considered by Shulman<sup>1</sup> and the experiential and personal knowledges of Tardif,<sup>2</sup> recognized in the cases' pedagogical reasoning and action, it is possible to say that among the sources, there is a regulating source that, in the ambit of the reflection in the action, seems to be more important than the others: the knowledge acquired through the practice as a lecturer, which is analogous to the experiential knowledge of Tardif,<sup>2</sup> who presents it as a mediator for the evaluation of other knowledges,

and their relevance in the context of practice as a lecturer. That is to say, even if the cases were to use other sources as well, and these sources were to support their categories of knowledge base for teaching, it would be the knowledge acquired in the practice as a lecturer, through reflection, which would mediate the use of one source or another and validate its relevance, shaping the knowledge base for teaching. The development of the wisdom acquired through practice as a lecturer seems to occur partially through what Schön terms reflexive conversation.<sup>3</sup> On facing a situation one considers to be unique, one resorts to some element known from one's repertoire, which is treated as an exemplar or as analogous. The situation is framed and acted upon, experiencing and appreciating it through recognized constants.

However, as well as appreciating what is underway, it is necessary to reflect on the repercussions of the actions in order to be able to validate the experience or even to re-frame it, learning with them. This framing was given distinctly by each case and, depending on how they did it and on the constants which they used, rather than providing knowledge, it could stifle the development of the person's own knowledge acquired through practice as a lecturer.<sup>3</sup>

When one addresses the idea of sources of knowledge base for teaching, it is essential to understand that the construction of the sources is not supported in scientific knowledge alone. The wisdom acquired through practice as a lecturer is not a source exemplifies only the testing of theories on teaching learned through access to the sources of academic training and the scientific literature, for example. There is a significant amount of subjectivity involved in the construction of the sources, if one accepts the idea of personal knowledges of Tardif,<sup>2</sup> and this influences the construction of the knowledge base for teaching. Recognizing this intrinsic subjectivity can help the professors in their process of reflection and to develop the pedagogical reasoning and action with greater breadth.

Because of this, the development of reflection on the reflection in the action<sup>3</sup> in the perspective of developing the knowledge base for teaching is dear for the professor. Depending on the robustness of the constants, the professor is more or less capable of recognizing and addressing what seems to be poorly-founded and troubling in her practice, and depending on the differences in these constants, taken individually and as global phenomena, we can make sense of the significant differences in the reflection of the action, both inside and outside the professions.

This can be seen in the public and private

cases, which used theoretical and empirical frameworks, respectively, in which they based their practice. There are authors who suggest that a theoretical framework both qualifies and is relevant for the learning in the practice as a lecturer;<sup>12</sup> however, it is necessary to take into account that the framework can also stifle reflection and make it dogmatic. As the wisdom acquired through practice as a lecturer was a relevant source, it may be that this framework has been tested for reflection in the action and has been proven satisfactory,<sup>3</sup> contributing to the establishing of the knowledge of the objectives, that is, of that which the students must achieve in the sphere of their courses. This articulation between the sources and the general pedagogical knowledge was strong to the extent that it configured and, sometimes, supplanted the knowledge of the curriculum, being added to other formative objectives.

Although the wisdom acquired as practice as a lecturer has greater weight, if compared with the other sources, it is essential to observe that greater access to the sources provides the cases with the possibility of multiple checks on their general pedagogical knowledge.<sup>12</sup> In this sense, broadening access to the sources seems to provide greater strength for the development of reflection and, consequently of knowledge base for teaching.

The type of source used seems, in its turn, to hierarchize the knowledge base for teaching as well. A linkage was observed between the constructs of sources and knowledge base for teaching, as suggested by Shulman,<sup>1</sup> in which the categories of knowledge develop related to one or more sources, with some categories being more predominant and significant than others.

Any one of the articulations between the categories of knowledge base for teaching presented here reflects a certain comprehension on the part of the cases regarding teaching - this understanding being the first phase of the MPRA.<sup>1</sup> It is possible to observe that each one of the professors has her own Model, and that the influences were multiple and supported by a way of acting and of reasoning pedagogically; of reflecting.<sup>13</sup> Determining the preponderant elements in the cases' pedagogical reasoning and action must not be understood as determination, but as a tendency. Other categories of knowledge base for teaching also participate in the pedagogical reasoning and action, but with a lesser intensity.

Socialization with peers was not indicated as a source of relevant knowledge for private case's reasoning and action, possibly because her link with the university was hourly, while public case

worked for the university exclusively and spent the day there in activities and contact with her peers. These were the contexts of the pedagogical reasoning and action, shaping the access to the sources, but not alone. The way in which the cases understood their work and processed the experience which they had, inserted in these contexts, the understanding, determined the use and development of the sources.

It is very true that, although the effort of revealing the reflection which the cases undertook upon teaching is valid so as to allow the understanding of the multiplicity of possible configurations, and that this is not a watertight process, but, rather, is changeable and directly proportionate to the ability to reflect, an ability which can be learned,<sup>14</sup> it is foolhardy to do so, as the sources and categories of knowledge base for teaching are interwoven together, as they are interwoven in the phases of the Model.

In this regard, it is relevant – within the phases – to highlight the role of the comprehension,<sup>15</sup> which seems to be the key to the entire process of pedagogical reasoning and action in the structure of the Model. Not just because it is the first element, which is not by chance, but because it may be the most important element for the production of changes in the professors' teaching and practice. In the comprehension, there are some reinforcement mechanisms, of episodes which reaffirm it, used by the professors who, upon exemplifying their understanding regarding the teaching, for example, next raised examples which they had experienced in the classroom, and which reaffirmed that the manner in which they understood and did their work was in fact appropriate. There were also some experiences which were highlighted as paradigmatic, which were indicated as dividing the practice as a lecturer from one mode to the other.

In the construction of both cases' understanding, once again a relevant role is given to the knowledge acquired through practice as a lecturer, which re-iterates or modifies comprehension. The understanding described by Shulman<sup>1</sup> is more limited to one content or material to be taught in the ambit of a course, but the fact remains that the cases' understanding ended by involving other aspects, suggesting that perhaps it will be interesting to broaden the original concept of comprehension to a concept which covers not only comprehension as a pragmatic act within pedagogical reasoning and action with a view to the teaching of curricular content, but also as a means by which the professor understands herself in this role, understands the institution, and the world around her.<sup>16</sup>

Contributing to the reflection, we understand that, as the comprehension is conceived in a less

pragmatic way, it is admitted that there is no linearity in the Model, but that also there is the possibility of multiple configurations,<sup>17</sup> as was observed in the cases. The cases did not only evaluate what they had planned in the phase of transformation in the phase evaluation, but did this in the phase of teaching, and likewise did not base their evaluation only in what they experienced in the teaching phase, but also in relation to what they had organized in the phase of transformation.

## CONCLUSION

Bearing in mind that this text's objective was to relate sources of knowledge base for teaching to the teaching, categories of knowledge base for teaching and phases of the MPRA of professors of higher education in nursing in public and private universities, it should be emphasized that there seems to be, in the cases observed, a hierarchization of the sources and of the categories of knowledge base for teaching, as well as a relationship of subordination of the categories of knowledge base for teaching and of aggregation or overlapping of the phases of the Model, commanded by the reflection in the action, which are mutually distinct.

Recognizing, in the pedagogical reasoning and action of the professors of nursing, the presence of patterns, distinctions and multiple configurations in the articulation of sources and knowledge base for teaching, between categories of knowledge base for teaching, between categories of knowledge base for teaching and phases of the Model, and between phases of the Model, indicates that each professor reasons pedagogically in her own way and that, therefore, establishing standard programs for lecturer training, based in content, would not suit everybody.

Upon perceiving the presence of the continuity of relationships established between Shulman's constructs in the practice of professors of nursing, this does not mean that their capacity for reflection on their own practices is complete, or that it is clear to them in which parameters their reflection takes place, which reinforces the suggestion that the professors are alert to this fact in the pedagogical reasoning and action and should constantly examine their understanding; as well as investigate and question their own truths.

In this regard, broadening access to the sources in order to broaden the possibility of reflection may be important for lecturer training. Among the sources to be broadened, we emphasize socialization between peers. The work as a lecturer, and reflection,

are fairly solitary and discussion could encourage new connections, which benefit pedagogical reasoning and action. It is powerful to think about the creation of partnerships, the stimulation of spaces in the university where the professors would have opportunities to create together, to think together, beyond the formal spaces already put in place, such as the course's collegiate body.

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