Representing the epistemic nature of teachers’ practical knowledge

The case of class teachers’
general pedagogy
Khalil Gholami

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The present study examined the epistemology of teachers’ practical knowledge. Drawing from the literature, teachers’ practical knowledge is defined as all teachers’ cognitions (e.g., beliefs, values, motives, procedural knowing, and declarative knowledge) that guide their practice of teaching. The teachers’ reasoning that lies behind their practical knowledge is addressed to gain insight into its epistemic nature. In order to fulfill this task, I studied three main research questions: what is the structure of teachers’ reasoning, what is the nature of teachers’ reasoning, and what patterns can be found within the structure of teachers’ reasoning?

I studied six class teachers’ practical knowledge; they teach in the metropolitan region of Helsinki. Because the content of teachers’ practical knowledge was found to be various and different, I mainly focused on their general pedagogical knowledge. Drawing from literature and based on a preliminary investigation, I identified the themes of the teachers’ general pedagogical knowledge: the teachers’ knowledge about the concepts of teaching and learning, instructional strategies, and classroom management. Therefore, in a practical term, I studied the epistemic nature of teachers’ practical knowledge related to the general pedagogical knowledge including described themes. Relying on the assumptions of the phenomenographic inquiry, I collected and analyzed the data: I observed the teachers’ classrooms on an 18-month period in two successive academic years, and interviewed them in different ways during the period. I analyzed the data in two stages where the first stage involved an abductive procedure, and the second stage an inductive procedure for interpretation, and thus developed the system of categories. In the end, a quantitative analysis was nested into the qualitative findings to study the patterns of the teachers’ reasoning.

The results indicated that teachers justified their practical knowledge claims within the structure of “practical argument”. The teachers’ practical arguments were found to have six different elements, each calling for a particular function but all aimed at supporting a “practical decision” or “judgement” that something should or should not be done. Three basic elements were important to gain insight into the main research task: the knowledge claim, the grounds, and the epistemic conditions of practice. The knowledge claim was the core idea and all other elements revolving around it to support its “goodness”. The grounds were found to be the contextual reasons that teachers relied on to justify their knowledge claims. The epistemic conditions of practice were the most important criteria in understanding the epistemic nature of teachers’ practical knowledge. They were found to be the “implicit value” or the “epistemic weight” in the mind of teachers that acknowledged the relevance of contextual reasons to the knowledge claims. Morality and efficiency of action were two significant forms of epistemic conditions of practice. Efficiency of action was found to be presented in two different ways: authentic efficiency and naïve efficiency.

The epistemic weight of morality was embedded in what I call “moral care”. The core intention of teachers in the moral care was the commitment that they felt about the “whole character” of students. From this perspective the “dignity” and the moral character of the students should not replaced for any other “instrumental price”. “Caring pedagogy” was the epistemic value of
teachers’ reasoning in the authentic efficiency. The central idea in the caring pedagogy was teachers’ intentions to improve the “intellectual properties” of “all or most” of the students using “flexible” and “diverse” pedagogies. The practical knowledge that has this epistemic condition is supposed to be a good and an effective practice in bringing about learning for the students. In this way, the “practical knowledge” and “bringing about learning” may not significantly be isolated. The care and good is primarily embedded in “bringing about learning”, but it also constitutes “practical knowledge” since that practical knowledge must bring about learning. However, “regulating pedagogy” was the epistemic condition of practice in the cases corresponding to naïve efficiency. Teachers argued that an effective practical knowledge should regulate and manage the classroom activities, but the targets of the practical knowledge were mainly other “issues” or a certain percentage of the students. In these cases, the teachers’ arguments were mainly based on the notion of “what worked” regardless of reflecting on “what did not work”.

Drawing from the theoretical background and the data, teachers’ practical knowledge calls for “praxial knowledge” when they used the epistemic conditions of “caring pedagogy” and “moral care”. It however calls for “practicable” epistemic status when teachers use the epistemic condition of regulating pedagogy. As such, praxial knowledge with the dimensions of caring pedagogy and moral care represents the “normative” perspective on teachers’ practical knowledge, and thus reflects a higher epistemic status in comparison to “practicable” knowledge, which represents a “descriptive” perception toward teachers’ practical knowledge and teaching.

**Keywords**: teachers’ practical knowledge, teachers’ reasoning, teachers’ pedagogical ethics, practical argument, *phronesis*, epistemology, contextual justification
Khalil Gholami

Opettajan käyttötiedon epistemologisuus

Tutkimus luokanopettajien käyttötiedosta

Tiivistelmä


Tutkimukseen osallistui kuusi pääkaupunkiseudulla toimivaa luokanopettajaa. Tutkimus kohdistui heidän yleiseen pedagogiseen tietoonsa opettamisesta, oppimisesta, opetusmenetelmistä ja luokan hallinnasta. Fenomenografian perinteeseen nojautuva tutkimusmenetelmässä hyödynnettiin sekä havainnointia että haastattelua. Havainnointia suoritettiin kahden akateemisen lukuvuoden ajan (18 kk) ja opettajia haastateltiin tuona aikana monin erin tavoin. Tulosten analyysi tehtiin kahdessa (abduktiivinen ja induktiivinen) vaiheessa. Lisäksi määrellistä tutkimusotetta käytettiin täydentämään laadullista menetelmää, jotta löydettäisiin opettaja perusteluhihin liittyviä malleja.


Opettajan käyttötietoa, johon liittyy huolenpidon pedagogiikkaa, voidaan kutsua "praxis". Säännöstelyn pedagogiikassa sen sijaan on kyse "practicable knowledge". Edellinen viittaa opettajan normatiiviseen toimintaan, missä kasvatukkisellet arvot ovat lähtökohtana. Pohdittaessa toiminnan oikeutuksia opettaja käyttötieto ulottuu korkeammalle tasolle kuin jälkimäisessä descriptiivisessä toiminnassa.

Avainsanat: opettajan käyttötieto, opettajan päättely, pedagoginen etiikka, argumentointi, epistemologia, tilanne- ja toiminnan oikeutus, käytännön viisas
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Introduction

The introduction will give readers an overall picture of the research. It explains the contexts in which the research was done and acknowledges the possibilities of, and limits to the research. In addition, there is a brief overview of the background to the study. The main research task, the research questions, and the relevance of the research are also addressed here.

Positionality

Fay (1996) claims that perspectivism is the dominant epistemological mode of contemporary intellectual life. “Perspectivism” is the view that all knowledge is essentially perspectival in character. In other words, knowledge claims and their assessment always take place within a framework that provides the “conceptual resources” in and through which the world is described and explained. “According to perspectivism knowers can never view the reality directly as it is in itself; rather they approach it from their own slant, with their own assumptions and preconceptions” (p. 72). I would like to add my reflection to the idea of perspectivism based on my experience with the present study, and thus explain and show my credibility in undertaking this academic work.

Given the argument of perspectivism, I need to explain that there have been two distinguished perspectives (or frameworks) underlying my research: the theoretical and the practical perspectives. The theoretical perspective suggests that the knowledge claim of the study adheres in part to the most recent theories explaining the phenomenon under research. In other words, the existing theories in the background of the study are significant conceptual resources for generating knowledge about the topic. This is what I call theoretical perspectivism. Theoretical perspectivism shows that the knowledge claims about participants’ experience or the phenomenon being studied is, to a degree, bound to its distinctive underlying theoretical framework or assumptions. The practical perspective on the other hand, concerns the participants’ and researcher’s characteristics and the contexts in which they cooperate to generate knowledge about their experiences. In other words, the idea of deriving meaning from the research has been a function of the characteristics of individuals involved in the research and the context in which they work. This is what I call practical perspectivism of this study. It demonstrates that the cultural, professional, and personal characteristics of the people who
engaged in the research have influenced the explanations, descriptions, and knowledge claims of the study as well as the methodological decisions. Both theoretical and practical perspectivism in this study may reflect what Fay (1996) calls on *epistemological relativism* that “the content, meaning, truth, rightness, or aesthetical beliefs, claims, experiences, or actions can only be determined from within a particular conceptual scheme” (p. 77).

In research on teachers thinking and knowledge, the role of context needs to be considered when researchers make the claim that teachers’ words or other spoken and written texts created in interviews represent the teachers’ inner thinking and knowledge. Drawing on Hargreaves (1977) and Bahktin (1985), Freeman (1994) has argued that despite the claims asserted by researchers on teachers’ knowledge that the teachers’ inner world brought out through co-narration or co-construction in the research process, that voice [knowledge] is created on the occasion of the researcher-teacher meeting for the purpose of their collaboration, and it is also constrained by that situation, “thus the voice is a statement about the relationship found within a portion of language” (p. 87). Therefore, I understand my research as a particular context that includes three influential elements of its knowledge claim. In other words, the knowledge produced by this research results from the interactive functions of these three elements: the researcher, the participants, and the study’s theoretical framework.

One may wonder whether it is *prima facie* clear that most research involves such elements and there is thus no need bring up this point in scholarly works. However, I contend that such reflection is necessary, at least in this research, for the following reasons: (1) each of the three aforementioned elements distinguishably shares in representing the ‘hows’ (i.e., the methods of research) and the ‘whats’ (i.e., the meanings and knowledge generated) of the research phenomenon. In other words, all descriptions and interpretations of the reality of the present research are significantly dependent on these three factors and the way they interact. (2) The particular characteristics of the participants and the researcher shape the context of the research as a distinct framework with cultural and linguistic load that influence the representation of the research experiences (I will later discuss how the first two parts function). (3) In research on teachers’ thinking and knowledge specifically in interview-based research, it is widely assumed that “what teachers know depends on an analysis of what they say….in this representational view of language data, teachers’ words are taken as isomorphic to their thought, beliefs, knowledge and feeling” (Freeman, 1994, p. 77). In such studies because, on the one hand, participants are mostly the source of the data and, on the other hand, researchers are meaning-makers, the representation the reality of the data is highly dependent on the linguistic and cultural background of
both participants and researchers. Drawing on Whorf, Fay (1996) has argued that linguistic systems “provide organizing principles on the basis of which the indiscriminate flow of stimulation is organized into true sense experience….each linguistic system organizes the flow of sensation into its own unique patterns so that those in different linguistic systems literally experience that world differently” (p. 78). Thus, in studies with cultural and linguistic bearing, it is necessary to show how these cultural and linguistic features stand in regard to the knowledge claim of the study.

Given the above argument, at this point I need to illustrate the way the researcher, the participants, (i.e., the practical perspective), and the theoretical background of the researched phenomenon (i.e., the theoretical perspectives) interact in the real context of the study. Figure 1 shows the outline of these interactions.

![Figure 1](image)

**Figure 1.** Outline of the possibilities of and limits to the knowledge claims of the research.

Like other studies, the “function space” of this study was a reflection of the limitations (research barriers) and opportunities embedded in the research framework. The major obstacle was related to the language of communication between the participants and the researcher because the researcher is unfamiliar with the Finnish language, which is the main language of instruction in the Finnish school system, he had to limit his selection of participants to those teachers whose language of classroom instruction was English. As a result, five Finnish teachers and one of non-Finnish origin (South Africa) were chosen for the research on a voluntary basis. Thus, the flow of data from the participants to the researcher may have been partially influenced by
the fact that teachers did not express their thinking about the researched phenomenon in their mother tongue. This is precisely the first point at which the way of thinking about data is shaped and colored by language character, and departs from being ‘pure reality’. The data then need to be, explicated, described, and interpreted in order to make sense and to be shifted into meanings and knowledge by the researcher who in turn is accustomed to ‘thinking’ in a linguistic system other than English. And, this is the second point where the data are no longer “pure” and acquire another color. Generally speaking, most social studies, particularly interview-based ones, suffer from the same limitation, and one cannot asserts that he or she has reached pure reality, independent of the context of the study. Meanings are always shaped by different contextual systems. However, this does not necessarily mean that the research community runs on the wrong track, and thus should stop investigating in this way. Still, we all need research on social experiences associated with exploring or describing relative or a partial reality; and this would be enough in a given context to serve as first step toward the future.

Considering such research limitation and even though the knowledge claim was partially influenced by the language problem (from a linguistic point of view), there was a basic opportunity in the context of this study to lessen the negative effect of the language barrier. The participants and the researcher were all familiar with a “common professional language, namely pedagogy”. Prior to undertaking this project, the researcher taught for almost nine years. Though he was working in a different culture, he was familiar with life in the classroom which helped in arriving at a deeper understanding of the reality based on the participants’ professional language. Moreover, the theoretical background and assumptions of the study were the other essential elements in helping the researcher stay on the right track, thus lessening the influence of research barriers, specifically the language. I did a continuous, interactive comparison between all descriptions and meanings derived from the analysis of data with the theoretical background to see how logically and theoretically they are integrated into or divergent from existing knowledge.

Therefore, the interaction between the practical and theoretical perspectives of this study, as described earlier in this section, has shaped its distinctive contextual framework. Below, I shall demonstrate that the epistemic merit of the knowledge claim generated by this study, and also any judgment of it, is closely bound to this framework. Fay (1996) has argued that different conceptual schemes are “incommensurable”, which means “no common measure can serve as a bridge among different conceptual schemes. Those inside one conceptual scheme would be living [thinking] in their own reality, one different from those living in other conceptual schemes; and the experi-
ences of the respective members would be so different that no basis could exist on which to understand each other” (p. 80).

Background

For many years, schools have primarily been structured in such a way as to support a version of traditional knowledge claims whereby teachers are seen as passive spectators of knowledge embedded in existing formal curriculum. The classroom has thus been viewed as a sphere in which teachers’ most significant task is to transmit a particular subject matter to students as who passively receive it. The basic assumption underlying this tradition is to insist on the correspondence theory of “truth” and on imposing it onto life in the classroom. According to this theory, the true knowledge about the process of teaching-studying-learning is produced by others (e.g., university researchers), and teachers should utilize this knowledge to solve concrete problems embedded in their professional lives.

This traditional or foundationalist versions of curriculum and schooling, and thus the passive rule of teachers in this tradition, has been challenged from the perspective which is called “Epistemology of practice” (e.g., Boyles, 2006; Carr, D. 2003; Carr, W. 2004, 2005; Schön, 1991,1995 ; Whitehead, 2000). The logic of this epistemology is to enable practitioners to understand their own rationality. Whitehead (2000) contends that “when I [as a practitioner] make a claim to believe or to know something [as a result of my reflection], or to explain why something happened, I want to understand the logic of the belief, knowledge or explanation” (p.94). Thus, according to this perspective, as D. Carr (1995) has stressed, teaching practice is not the application of a “time-and-place” independent educational theory. Teachers are not passive spectators of abstract and technical knowledge produced by others. The opposition here is to espouse technical rationality and rational planning, guided by disembodied, abstract theories. Boyles (2006), for instance, as a result of this challenge to the traditional perspective, draws on Dewey’s concept of “warranted assertibility”, offer a progressive knowledge claims related to classroom practices:

It is in this sense that I wish to force the revolutionary point that teachers, regardless of the superstructure, have epistemological (as well as other) responsibilities to their students…. I do believe that teachers are in positions of power that they may not fully understand: teachers have significant room to maneuver and control at least some of what goes on in their classrooms….teachers can engage actively (and more critically) in epistemological discourse, questioning the views of knowledge implicit in current curricula and classroom practices….Envisioning
classroom practices that specifically endorse warranted assertions would mean that students and teachers would no longer operate under the assumption of ‘the truth’ in Platonic, Kantian, or ‘No Child Left Behind’ terms. Instead, students and teachers would view assertions in connection to solving problems they face in their concrete situations (p. 67).

Progressive knowledge claims regarding what happens in classroom life, and specifically regarding what teachers already know, not what they should know, has been reflected in a variety of research programs under the umbrella of “teachers’ practical knowledge” (e.g., Connelly & Clandinin, 1985; Elbaz, 1981 1983; Meijer, 1999; Zanting, 2001). Practical knowledge is based on an epistemological assumption that “generating knowledge about good teaching is not the exclusive property of university researchers, and it recognizes that teachers also have theories that can contribute to a codified knowledge base for teaching” (Zeichner, 1994, p.10). In this study, teachers’ practical knowledge is considered to be (1) the “teacher knowledge” that stems from various sources (e.g., professional experience in the classroom, teacher training programs), (2) includes all teachers’ cognition (e.g., values, beliefs, motives), and (3) has as its most significant function to guide teachers’ practice.

Teachers’ practical knowledge, although very popular and fruitful in research on teachers’ thinking has however been questioned on the grounds of epistemic criteria: how teachers reason about their knowledge, what evidence and proof they suggest for justifying their so-called practical knowledge, “what basis teachers have for knowing what is appropriate and true in matters they face in their work” (Tirri, Husu, & Kansanen, 1999, p. 17). These questions open a number of perspectives on epistemology in such a way as to evaluate teachers’ knowledge claims in terms of their relationship to the “true” (Kansanen et al., 2000). Based on this challenge, the main task of this research was to describe the epistemic nature of teachers’ practical knowledge by obtaining insight into the “teachers’ reasoning” underlying their practical knowledge. This insight is theoretically significant as it helps researchers know more about a less-researched aspect of teacher thinking: reasoning.

**Research task**

The assumptions and interest in conducting the present research originates in my personal experiences as a subject teacher and also as a researcher. I used to be in charge of an educational research center where I engaged in studies related to the professional development programs of in-service teachers. Over
the period I worked there, I realized that the reasons by which teachers supported their practical decisions and actions were strongly associated with the quality of teaching they had throughout their professional endeavors. In other words, teachers, among other things, by using different types of reasoning, demonstrated teaching practices with different qualities. This phenomenon, I realized, was an influential factor in conducting the formal curriculum of the school communities: teachers’ reasoning was, in other words, at the heart of a hidden curriculum, which was a significant component of schools learning activities along with the formal curriculum.

These experiences motivated me to become involved in this project. And thus, the main assumption triggering this research task was the realization that teachers may rely on different grounds when they come out with practical decisions and actions. These grounds are mostly implicit in the teachers’ thinking and represent the reasoning that guides their practical knowledge. Therefore, the main purpose of this study was to describe the epistemic nature of teachers’ practical knowledge through gaining insight into the reasoning that underlies such knowledge. In order to accomplish my research task, I formulated three main research questions:

1. What is the structure of the reasoning that lies behind teachers’ practical knowledge?
2. What is the nature of the reasoning that lies behind teachers’ practical knowledge?
3. What patterns can be found in teachers’ reasoning?

The first central research question concerned the forms of the premises and the constituting elements that the teachers used in their reasoning to support their practical knowledge. In examining this question, I primarily drew on Toulmin’s (2003) model of argument. In so doing I looked for a cognitive claim, which was teachers’ practical knowledge. This cognitive claim was based on data or some other grounds concerning different supporting evidence, information and reasons. I then looked for warrants that represent the psychology of the argument in that they reveal unspoken beliefs and value that connect the data to the claim. An additional evidence for supporting claim and warrant was another target: this is called backing. To obtain more insight into the structure of teachers’ reasoning, I also, reflected on the studies of teachers’ practical arguments (e.g., Fenstermacher & Richardson, 1993; Fenstermacher, 1986, 1987; Morine-Dershimer, 1987, 1988; Vasquez-Levy, 1998) in which the reasoning’s structure of teachers is viewed as a practical argument that includes various types of premises and a conclusion. Audi’s (1989, 2006) philosophical speculation on the nature and structure of practical reasoning was another basic starting point in considering the first research
question. In several of these studies, teachers’ reasoning was seen to have an argumentative structure whereby teachers try to justify their pedagogical decisions and actions. To obtain insight into the constituting elements of this argumentative structure was of special interest in this study.

In investigating the second main research question, I relied on epistemological discourses regarding the teachers’ practical knowledge. Among these, the Aristotelian’s concept of phronesis, and means-ends discourse arising from it in relation to teachers’ reasoning (e.g., W.Carr, 2005; Kristjánsson, 2005; Orton, 1997, 1988; Pendlebury, 1990, 1993), pragmatic interpretation (e.g., Orton, 1996; Boyles, 2006), and intuitive and rational understanding (Kansanen et al., 2000; Tirri et al., 1999) of teachers’ reasoning were starting points for developing a conceptual framework to gain more insight into the nature of teachers’ reasoning regarding their practical knowledge. Fenstermacher’s (1994) argument for how teachers’ practical knowledge should be subject to epistemological scrutiny was another important resource for examining the second major research question. In most of these works, teachers’ reasoning is examined from a theoretical point of view. More empirical studies, however, are needed to describe how teachers reflect on educational means and ends when they reason about their practical and pedagogical knowledge. It is also important to know what types of reasons underlie teachers’ practical knowledge in order to understand the nature of teachers’ reasoning. Thus, of special interest with regard to the second research question was the nature and types of teachers’ reasoning vis-à-vis their associated pedagogical decisions and actions.

Moreover, for gaining a better understanding of teachers’ reasoning, the possible relationship between the structure and nature of teachers’ reasoning was another target in this research. In examining this research question, I specifically reflected on how different elements of teachers’ reasoning were related to each other and thus how these relationships were represented in the means-ends discourse.

Relevance

Kuhn (1991, 1992) has pointed out that reasoning and argument are probably the most significant ways in which people, including professionals, demonstrate higher order thinking or critical thinking: “thinking as argument is implicated in all of the beliefs people hold, the judgments they make, and the conclusions they come to; it arises every time a significant decision must be made. Hence, argumentative thinking lies at the heart of what we should be concerned about: examining how well people think” (p. 157). The signifi-
cance of studying human reasoning in relation to everyday and professional jobs has been emphasized in social sciences, because in social contexts, professionals have different reasons for doing what they do. People hold explicit or implicit epistemological standards according to which they view their actions and knowledge as worthwhile, as personally accepted paths to their beliefs and values. Classroom life, as a social context, is also believed to be the “most promising arena for practicing and developing argumentative thinking skills” (Kuhn 1992, p. 155). To gain insight into teachers’ reasoning, we should help them “become more aware of the normative, theoretical, and interpretative nature of evidence…and then become more [reflective], reasoned and critical in their professional decisions making” (Harrington, 1995, p. 210). In other words, research on teachers’ reasoning “may serve as a device for helping teachers gain a sense of the basis for their actions, and helps teachers use defensive theory and good research to advance the pedagogical competence” (Pendlebury, 1990, p. 172). From this perspective, insight into the teachers’ reasoning and their argumentative skills may help us describe how teachers think in their work.

From the view point of the present study, insight into the epistemic nature of teachers’ practical knowledge (i.e., its underlying reasoning or justifications) can contribute to professional development, since “establishing a [sound] knowledge base that underlies teachers’ practice is a condition for improving the status of teaching as a profession” (Meijer, 1999). In other words, one important aspect of teachers’ professional development programs is to work on their practical knowledge in the sense that such knowledge is sound in guiding their practice. From this point of view, practical knowledge requires some standards in order to be considered as knowledge. As Fenstermacher (1994) argued, it is imperative to understand that the practical quality of teachers’ knowledge does not relieve us of the requirement for some sort of justification. It is important to know what kinds of reasoning and rationales underlie teachers’ pedagogical decisions. Do teachers know why they believe what they do, in a way that they can provide good reasons to themselves or to others? Do they understand what grounds or evidence support or contradict the goodness of their pedagogical decisions and actions? According to Kuhn (1991), answering such questions has far-reaching implications with regard both to the fulfillment of individual lives and professional lives. It is possible to develop teachers’ knowledge and beliefs more effectively when we understand what rationales, evidence, and reasons, and in what ways, underlie their knowledge and beliefs. Otherwise, we may follow the wrong track in our research on teachers’ thinking in an effort to develop their practice.

From the perspective of pedagogical practice, poor reasoning embedded in teachers’ thinking and specifically in regard to practical knowledge may
cause less and poorer development in their jobs, and therefore postpone the self-actualization of learners. For this reason, the true value and the core accomplishment in teacher professional programs is to work on teachers’ reasoning so that teachers can reflect on their reasoning and challenge it in order to develop their practice. “The goal of teacher education is not to indoctrinate or train teachers to behave in prescribed ways, but to educate teachers to reason soundly about their teaching as well as perform skillfully; sound reasoning requires both a process of thinking about what they are doing, and an adequate base of facts, principles, and experiences from which to reason” (Shulman 1987, p. 133).

From a philosophical point of view, research on teachers’ reasoning yields insight into the philosophy of teaching in order to understand whether teaching has an “end” in itself or is a “tool” for accomplishing some other ends isolated from the practice of teaching. In other words, by studying the reasoning that underlies teachers’ practical knowledge, we can obtain more empirical insight into the “means-end” discourse in the philosophy of teaching. This insight in turn helps teacher educators understand the complexity of teaching in a philosophical point of view.
1 Research on teachers’ knowledge

This chapter begins with an overview of the shift of focus in research on teaching from a positivistic to a constructivist approach, resulting in increased attention to teachers as the source of professional knowledge and thus focusing on teachers’ thinking rather than only on their behaviors. In research on teachers’ thinking, special attention will be paid to teachers’ knowledge, including an overview of two inclusive modes of knowledge: narrative and paradigmatic. In the narrative mode, teachers’ practical knowledge has been examined. In order to arrive at a better understanding, three basic aspects of practical knowledge, including its sources, content, and processes have been examined. Regarding its sources, teachers’ practical knowledge, as will be discussed, originates from social, theoretical, and personal contexts. Content is believed to be related to different pedagogical elements in the context of teaching, e.g., classroom management, students, self, curriculum. I will also discuss how teachers’ practical knowledge is processed through reflection-on-action and reflection-in-action. Based on these three elements, then, I will present a description and definition of teachers’ practical knowledge. At the end of chapter, I offer a model for illustrating the concept of teachers’ practical knowledge.

1.1 From positivist to constructive approaches in research on teaching

For many years the positivist tradition was considered to be the basic epistemology for contributing to educational theory. This viewpoint “has an instrumental orientation, emphasizing technical problem solving based on specialized scientific knowledge”; the core assumption underlying positivism is to insist that “knowing is mirroring of external reality and the individual knower is free of cultural influence” (Yinger, R. & Hendricks-Lee, M, 1993, p. 101). Drawing on Gibson, Calderhead (1993) has also stated that “what is seen as characterizing positivism [in the context of teaching] is the striving for principles or generalization, a set of ‘law-like’ accounts that enable action to be predicted and controlled” (p. 13).

Relying on positivist assumptions, researchers on teaching, until the 1970s, primarily focused on the process-product paradigm. Studies influenced by this trend can be analyzed from two interrelated perspectives: first, the underlying theoretical and methodological assumptions; and second, the ways of applying the results of these studies in classroom situations. From the
first point of view, the central task of most vigorous research programs was to produce knowledge about the association between teachers’ behaviors and students’ achievements. To fulfill this task, the “systematic observation schedules were used to measure a teacher’s behavior or classroom interaction (the process); these process variables were then used to predict student learning outcomes (the product)” (Meijer, 1999, p. 9; see also Carter, 1990). These studies were conducted in natural classrooms situations wherein researchers tried, by means of a variety of designs including experiments and correlation, to estimate effective and ineffective teaching strategies (e.g., Brophy 1988; Peck & Tucker 1973; Everston, Emmer, Sanford, & Clements, 1980; Gage 1978). Moreover, teachers’ behaviors in association with students’ learning outcomes, mostly achievement, were assumed to be as linear phenomenon in which the behaviors cause students to achieve regardless of the intertwined and complex ecological aspects of classroom life. Gage’s (1963) explication, for example, regarding the elements of process-product research illustrates how the teaching context is viewed as a sequential entity through the lens of this research approach. He has pointed out that the process-product research paradigm of teaching includes four common elements wherein teachers’ cognitive qualities cause their actions; teachers’ actions cause then the cognitive process of students, which is followed by the students’ actions. Therefore, the process-product research on teaching was conducted as if teaching were only or mostly associated with behavioral variables. It was viewed as a linear process. Thus, it should be researched by precise, systematic, observational, quantitative methods such as correlation and experimental designs.

Application of the knowledge resulting from process-product research in classroom situations is another aspect of this research paradigm. Among other things, this issue concerns generating universal and general instructional strategies to be used by different teachers in distinct situations. Rosen-shine and Stevens (1986) have claimed that “process-product research can generate a list of specific instructional techniques which teachers can follow and which lead to better student achievement”. In this way, teachers are seen as passive users of knowledge, which was developed through these studies in order to transmit subject matter to students who then would achieve more. However, as Meijer (1999) has argued, where the results of process-products studies were implemented the results were “what student teachers experienced as a ‘gap’ between teacher education and teaching practice: student teachers often indicated that the knowledge they acquired in teacher education was specialized and appropriate for well-defined tasks, but did not equip them to deal with the uncertainty, complexity, and instability of the actual teaching situation” (p. 10).
Thus, although teaching effectiveness or behaviorist perspective for the first half of the twentieth century (Borko & Putnam, 1996) illuminated what types of teachers’ behaviors may work, correlate with, or cause certain learning outcomes, it failed to reflect the complexity and dynamic nature of teaching. Shulman (1986), for example, argued that the “most important reason for erosion of the process-product programs was its unabashedly empirical and nontheoretical tenor; even as it moved to experimental treatment, the emphasis was pragmatically on what worked, rather on why it worked: the perspective was that of engineering rather that of science, or even of history” (p. 13). This failure resulted in dissatisfaction with imposing what Schön (1995) called “technical rationality” on the work of practitioners, thus a recognition of the active role of teachers in their professional lives. This move, called the “cognitive shift” (Clark & Peterson, 1986), directed research on teaching and teachers’ professionalism to application of progressive theories (e.g., constructivism and critical theory). Pope (1993) illustrated this shift in a metaphorical way and argued: “it is we who create our ‘prison’ and we can also, critically, demolish it” (p. 21). She then states that constructive assumptions can be applied to the research on teaching. The core of the constructivist paradigm in teaching is, according to Pope (1993), the fact that teachers can use and examine their established theories of teaching, and thus develop and improve their personal professional knowledge. Therefore, such progressive theories made new assumptions about the roles of teachers: teachers were no longer seen only as passive transmitters and as decision-makers, but as actively reflecting on their actions and, accordingly, as constructing their own theories. Elbaz (1981) stated:

As a teacher and curriculum worker, I have been disturbed by the inadequacy of the existing conceptualization of the role of the teacher within the field of curriculum. The prevailing view of teacher as a passive transmitter of knowledge does not accord with my own experience, in teaching and working with teachers, of what the teaching act requires (p. 43).

In practical terms, this paradigmatic movement practically changed research on teachers’ behaviors to research on teachers’ thinking or what is generally called teachers’ mental life.

1.2 Research on teacher thinking

On the one hand, research on teacher thinking has been the result of the failure of what is generally called the behaviorist approach in which “mutability,” “indeterminacy,” and “particularity” (Pendlebury, 1990) of teaching as a
practice-based profession were ignored (e.g., Clark & Peterson, 1986; Shulman, 1986; Pop, 1993). “Many curricular and educational reforms [which were based on behaviorist tradition] failed because they did not seem to account for the changing character of the situations met in practice, and did not correspond to the teachers’ ideas about what works in practice” (Meijer, 1999, pp. 10–11). In an empirical study Kennedy (2004) compared reform ideals with practical intentions of teachers and concluded that there is “substantial merit in the hypothesis that teachers’ interpretations of classroom situations, and the beliefs and values that contribute to those interpretations, could account for their long-recognized failure to adopt reform ideals. Whereas a reformer may interpret a classroom situation as presenting an opportunity for intellectual engagement, a teacher may interpret the same situation as threatening to disrupt a lesson momentum” (p. 27). In addition to the reforms, pre-service teacher education courses did not prepare graduates well for the realities of teaching, and teachers found it difficult to apply the knowledge acquired through formal study to the complexities of teaching (Black & Halliwell, 2000, pp. 103–104). This failure in teacher education and curricular reforms was partially seen as a result of the dominance of the process-product rationality on research on teaching and teacher education. This arguments, in turn, was based on the theoretical assumption that it is not only teachers’ behaviors associated with their pedagogical decisions, but more importantly, teachers’ cognitions that are fundamentally and mutually related to the teachers’ actions. Drawing on findings by National Institute of Education in the United States, Clark and Peterson (1986) pointed out that:

To the extent that observed or intended teacher behavior is ‘thoughtless’, it makes no use the human teacher’s most unique attributes. In so doing, it becomes mechanical and might well be done by a machine. If, however, teaching is done and, in all likelihood, will continue to be done by human teachers, the question of relationship between thought and action becomes critical (p. 256).

On the other hand, this shift in research on teaching was stimulated by the appearance of qualitative or interpretative studies of classroom teaching (e.g., Jackson, 1968; Kounin, 1970). As Carter (1990) indicated “by generating richly detailed portraits of the demands of classroom environments and the ways in which teachers struggled to cope with these demands, this tradition had a powerful influence on the development of research on teachers’ knowledge and its acquisition” (p. 295). Thus, the interest in research on teacher thinking has increased as a practical result of the theoretical assumption underlying research on teacher cognition and the growing application of interpretative methodology in research on teaching. Relying on different tasks, research in this tradition was conducted in order to understand the multiple
ways in which teachers make sense of the educational environment in their
schools and classrooms. Researchers in this tradition, for instance, carried out
different inquiries in order to know how knowledge may be structured in the
minds of teachers (Borko & Putnam, 1996; Pop, 1993); to acknowledge
teachers experiential knowledge (Hunt, 1987); to advocate and provide ser-
ices for teachers’ practice (Clark & Peterson, 1986); to hear the silent voices
of the ordinary teachers (Elbaz, 1991); and to identify issues about peda-
gogies that want to reform (Laursen, 1994).

However, one of the most important and the common aspects of these
studies has been the shift in attention to teacher professional development
from the outside to the inside. As Carter (1990) has stated “for the most part,
attention in teacher education has traditionally been focused on what teachers
need to know, and how they can be trained [the outside perspective of teacher
professional development], rather than on what they actually know or how
that knowledge is acquired [the inside perspective of teacher professional
development]” (p. 291). With this common feature and different research
goals, research on teacher thinking has been defined, classified, and orga-
nized into “distinct but overlapping approaches that represent different as-
sumptions, emphases, theoretical framework, and methodological commit-
ment and yet share many common themes” (Carter, 1990, p. 296).

1.2.1  Approaches to research on teachers’ thinking

Depending on the criteria, research on teacher thinking has been classified
into different categories by educational researchers and scholars (e.g., Borko
& Putnam, 1996; Calderhead, 1996; Carter, 1990; Clark & Peterson, 1986;
Fenstermacher, 1994; Putnam & Borko, 2000; Morine-Dershimer, 1991;
Shulman, 1987, 1986). Suggesting a model for teachers’ thought and action,
Clark and Peterson (1986) indicated that research on teacher thinking has
been mostly related to “decision-making” during different phases of teaching;
it also concerns “teachers’ theories and beliefs” about learning, students, and
other aspects of their professional responsibilities. In a different way, Carter
(1990) identified three approaches to research on teacher thinking: “(1) in-
formation-processing studies, which have tended to focus on decision-making
and contrasts between experts and novices; (2) studies of teachers’ practical
knowledge, or what teachers know about actual practice and the navigation of
complex classroom setting; and (3) studies of pedagogical content know-
edge, or what teachers know about subject matter and its representation to the
students” (p. 296). Morine-Dershimer (1991) defined another useful classifi-
cation of approaches: schema theory, reflection-in-action, pedagogical con-
tent knowledge, and practical arguments. What distinguishes Morine-Dershimer’s typology is to consider teachers’ practical arguments as a single approach in research on teacher thinking. The practical argument approach is distinguished from other approaches by dealing with reasoning and the grounds that teachers use to support the other aspects of their thinking such as pedagogical decisions and actions.

Apart from these general kinds of research into teacher thinking, some educational researchers (e.g., Calderhead, 1996; Fenstermacher, 1994; Munby, Russell, & Martin, 2001) have focused primarily on teachers’ knowledge as essentially representative of their cognitive lives. These scholars examined teachers’ knowledge from various perspectives, emphasizing different criteria in order to understand the nature of teachers’ knowledge. Because of the complex and intertwined nature of different aspects of teachers’ knowledge, which in turn originates from the complicated nature of teaching itself, there has been less clarity in the research on teachers’ knowledge. Munby et al. (2001) have explicitly pointed out that research concerning teacher knowledge is a complex and intertwined field of inquiry. They contend that complexity in the research on teachers’ knowledge originates from the different viewpoints, epistemologies, and moral issues in the accounts of professional knowledge about teaching. However, despite the complicated nature of research on teachers’ knowledge and in order to link the research on teachers’ knowledge to the present study, in the next section I will review the research on teachers’ knowledge by drawing attention to Bruner’s (1985) conceptualization of human thought. Bruner broadly identified two distinguished modes of knowing and argued that:

[There are] irreducible modes of cognitive functioning, or more simply two modes of thought, each meriting the status of a “natural kind”, meaning that each one can be recognized by common sense, and involves operating principles and criteria of its own of well-formedness: the “paradigmatic” or logic-scientific and “narrative” modes of knowing (p. 97).

The paradigmatic mode of knowing gets its epistemic weight from presuppositions embedded in *theoria* or so-called technical rationality; a narrative mode of knowing, however, originates in *phronesis* or practical rationality. Technical rationality, which is closely related to modern science “puts a premium on ‘objectivity’ and detachment, suppressing the context-dependence of first-person experience in favor of a third-person perspective which yields generalized findings in accordance with clearly formulated, publicly agreed procedures” (Dunne, 2005, p. 373). Knowledge in this sense is about some objects (i.e., some teaching practice) distinct from the knowing subject (i.e., the teacher) (Schwandt, 2005). Practical rationality, however, is “an action-
orientating form of knowledge ... with the ability to engage in the kind of deliberative process that can yield concrete, context-sensitive judgement (Dunne, 2005, p. 376). From this perspective, there is no “neat separation between the steps of having knowledge and applying knowledge. Rather ... knowledge is always embodied, a kind of confidence-in-knowing-in action” (Schwandt, 2005, p. 323).

In contrast, knowledge derived from technical rationality is disciplinary, characterized by homogeneity: it is organizationally hierarchical and tends to preserves its forms. Knowledge derived from practical rationality, however, is transdisciplinary, characterized more by heterogeneity: it is hierarchical and transient (Avis, 2003). From these theoretical perspectives, teachers’ knowledge has been broadly conceptualized and discussed in two distinguished forms: propositional or more precisely “formal” knowledge, which is developed by existing conventional, scientific research methods (Fenstermacher, 1994); and, practical knowledge/knowing\(^1\) or what is called the “wisdom of practice,” generally believed to have been acquired primarily as a result of teachers’ professional experiences and their reflections on the results of those experiences (see Carter, 1990; Elbaz, 1983; Fenstermacher, 1994; Meijer 1999; Zanting, 2001).

1.3 Teachers’ paradigmatic knowledge

According to Bruner (1985), the paradigmatic mode of knowing “establishes truth by appeal to formal verification procedures and empirical proof, and seeks explications that are context free” (p. 97). Moreover, “knowledge produced here ought to be explicit, general, universal and systematic” (Schwandt, 2005, p. 318). From this perspective, teachers’ knowledge is seen from the outside, and this means that knowledge about good teaching can be produced by people other than teachers. Thus, educational experts are considered to be producers of knowledge about good teaching, and teachers are viewed as users of this bulk of knowledge produced by others. Fenstermacher (1994) calls this knowledge “formal” knowledge:

This conception is a modification of what is known as the standard, or justified true belief, account of human knowledge. Such knowledge is gained from studies of teaching that use conventional scientific methods, quantitative and qualitative; these methods and their accompanying designs are intended to yield a commonly

\(^1\) In this research, I prefer to use the word “knowledge” in line with the existing literature. From this point of view, practical knowledge includes all the states of teachers’ cognitions that guide their actions including their procedural knowledge, i.e., their knowing. This is what Fenstermacher (1994) called a “grouping definition” of teachers’ practical knowledge.
accepted degree of significance, validity, generalizibility, and intersubjectivity (p. 8).

For Fenstermacher, formal knowledge differs from notions of propositional knowledge in that “a proposition may be quite specific or time bound, yet still pass epistemological muster as knowledge. In contrast, formal knowledge will not survive epistemological scrutiny if it is restricted in its application to time, place and situation” (1994, p. 28). Despite such different perspectives, propositional, theoretical, declarative, and formal knowledge share one point about teachers: all are partially based on the assumption that the knowledge in question is developed by educational experts and researchers, and that it should be learned, then used or applied by teachers in their individual teaching practices. In a specific way, paradigmatic or formal knowledge may provide the essential bases in various fields for developing what is typically called a foundational “knowledge base” for teaching (see also Grossman 1995; Shulman 1987).

The phrase knowledge base for teaching originated chiefly from the idea of the professionalization of teaching. In this view, teaching is considered to be both an activity and a profession, demanding standards by which the qualification and competence of teachers must be judged. According to Shulman (1987), advocates of teaching professionalism base their arguments on “the belief that there exists a ‘knowledge base for teaching—a codified or codifiable aggregation of knowledge, skill, understanding, and technology, of ethics and dispositions, of collective responsibility—as well as a means for representing and communicating it” (pp. 122–123). In order to realize this professionalism of the teaching ideal, the types and the sources of the knowledge base for teaching are discussed. In general, different typologies regarding teachers’ knowledge base have been analyzed. Borko and Putnam (1996), for example, organized teachers’ knowledge into three main categories relevant to their instructional practices: general pedagogical knowledge, subject matter knowledge, and pedagogical content knowledge.

The basic concept of a knowledge base for teaching, however, seems to draw its strength from Shulman’s (1987) paper, “Knowledge and Teaching: Foundation of the New Reform.” In it, Shulman discussed and identified, among other things, three important aspects of such foundational knowledge: (1) the ways by which standards of teaching must be legitimized, (2) the categories of such foundations, and (3) the sources of such a knowledge base for teaching. Regarding the first aspect, he suggests:

If teachers are to be certified on the basis of well-grounded judgment and standards, then those standards on which a national board relies must be legitimized by three factors: they must be closely tied to the findings of scholarship in the
academic disciplines that form the curriculum (such as English, physics, and history) as well as those serve as foundations for the process of education (such as psychology, sociology, or philosophy); they must possess intuitive credibility (or face validity) in the opinions of the professional community in whose interests they have been designed; and they must be related to the appropriate normative conceptions of teaching and teacher education (p. 124).

The categories of a knowledge base for teaching that Shulman proposes should be related to knowledge of content, general pedagogy, content pedagogy, curriculum, learners and their characteristics, educational contexts, and educational goals. Four basic sources are considered necessary for building a teaching knowledge base: scholarship in a content discipline, educational materials and structures, formal educational scholarship, and wisdom of practice. Even though the idea of a knowledge base for teaching is primarily rooted in paradigmatic knowledge, it seems that some its aspects overlap narrative or practical knowledge. Such a relationship is most evident when Shulman considers the wisdom of practice as one major source of teaching and includes knowledge about learners, general pedagogy, and content pedagogy to knowledge base for teaching. Empirical research has shown that teachers’ knowledge of pedagogy—both pedagogical content knowledge and general pedagogy, and their knowledge of learners—are primarily developed through professional teaching experiences (see, for example, Elbaz 1983; Meijer 1999; Van Driel, Verloop, & De Vos, 1998). Thus, these categories of knowledge base for teaching may not clearly correspond to Fenstermacher’s (1994) conceptualization of formal or paradigmatic modes of knowledge, since they are neither a codified nor a generalized sort of knowledge.

In sum and in conclusion, teachers’ paradigmatic mode of knowledge includes theoretical, propositional, and standardized notions that are generated by scientific research methods. Not all, but the major portion of the recommended knowledge base for teaching is fed by paradigmatic knowledge. The basic assumptions that lie behind the paradigmatic knowledge regarding the work of teachers are that: (1) this type of knowledge, which is concerned with educational theories in such various fields as instructional and pedagogical strategies, educational psychology, sociology of education, philosophy of education, and other knowledge base for teaching, is produced by educational researchers and other experts (e.g., university researchers and educators); (2) teachers need first learn this abstract knowledge in their teacher preparation programs and then apply or adapt it to the particulars of their teaching contexts. With this in mind, in the next section I will critically review narrative mode of knowledge regarding the work of teachers.
1.4 Teachers’ narrative or practical mode of knowledge

According to Bruner (1985), the “narrative mode of knowing establishes not truth but truth-likeness or verisimilitude and seeks explications that are context sensitive and particular, that is, it is concerned with the explication of human intentions in the context of action” (p. 97). The narrative mode of knowledge then is based on the assumptions of “Greek ‘practical philosophy’ which aims at developing the kind of context-based practical reasoning that is employed in the conduct of a wide range of morally informed human activities” (W. Carr, 2004, p. 61). Drawing on Aristotle, many contemporary educational philosophers consider that human knowledge related to practice has its theoretical roots in the concept of *phronesis* (Carr & Kemmis, 1986; W. Carr, 2004; Dunne, 2003, 2005; Kemmis, 2005; Kristjánsson, 2005; Orton, 1997). From the perspective of *phronesis* a narrative mode of human knowledge deals with morally-oriented decisions in the context of practice.

Broadly discussed and used in the context of teaching, this type of human cognitive quality is called practical knowledge (e.g., Connelly and Clandinin 1985; Elbaz, 1983, 1991; Fenstermacher, 1994; Meijer, 1999; Meijer, Verloop, & Beijaard, 1999; Zanting, 2001; Zanting, Verloop & Vermunt, 2003): it is recognized as the epistemology of practice (Kemmis, 2005). In his classification of teachers’ knowledge, Fenstermacher (1994) contends that “practical knowledge fits the narrative mode of knowing” (p.35) used by Bruner (1985). Fenstermacher has then, according to a critical review of a variety of studies, pointed out that from those researchers’ points of view (e.g., Elbaz, 1983; 1991; Connelly & Clandinin, 1985, 1992; Russell & Munby, 1992), practical knowledge is above all known and produced by teachers as a result of their professional experiences and reflection on these experiences. Even though the “experiential” aspect of practical knowledge is highly emphasized, this type of knowledge has different aspects. According to Vries and Beijaard (1991), practical knowledge guides teachers’ actions in practice; whereas scientific or formal knowledge is abstract and propositional, practical knowledge is experiential, procedural, situational, particularistic, and implicit. It refers to teachers’ knowledge of classroom situations and the practical dilemmas they face in carrying out purposeful action in these settings (Carter, 1990). As a result of this multi-faceted character of practical knowledge, a critical review of the literature shows that there is no concrete agreement about the concept of practical knowledge (Meijer et al., 1999). In order to establish conceptual clarity, I will describe the concept of practical knowledge in regarding to three basic and interrelated questions:
1. What are the sources of practical knowledge?
2. How is practical knowledge developed and used?
3. What is the content of practical knowledge?

1.4.1 The sources of teachers’ practical knowledge

The source of teachers’ practical knowledge, in this study, does not reflect a mechanical explication of the concept. Rather, my goal is to clarify one important aspect of practical knowledge, which different empirical and theoretical studies have insisted upon. Moreover, the sources of teachers’ practical knowledge, as pointed out by Elbaz (1981, 1983), are more orientational than epistemological. In other words, teachers take and use different knowledge sources as long as knowledge from these sources guides their actions and helps them meet pedagogical demands. Various orientations have been considered to be the sources of teachers’ practical knowledge as it is discussed in the following sections.

1.4.1.1 The personal professional experience

Teachers’ practical knowledge is primarily viewed as developing out of their personal professional experiences (e.g., Batten 1993; Connelly and Clandinin 1985; W. Carr 2004; Elbaz 1983, 1991; Meijer 1999; Meijer et al., 1999; Zanting 2001; Zanting et al., 2003). From this perspective, teachers learn a great deal on the job and simply by doing (i.e., by teaching). Elbaz (1981) was among the first scholars who precisely clarified the experiential orientation of practical knowledge. She maintained that teachers’ practical knowledge has five orientation sources: situational, theoretical, personal, social, and experiential. Situational orientation shows that teachers’ knowledge “is directed toward making sense of, and responding to, the various situations of teaching. Personal orientation reflects … [the assumption] that teachers use their knowledge to enable them to work in personally meaningful ways” (Elbaz 1981, p.49). Situational and personal orientations are considered to be implicit bases for the experiential aspect of teachers’ practical knowledge.

Along with insisting on an experiential aspect, Connelly and Clandinin (1985) have contended that teachers’ practical knowledge is derived from their narratives. According to these scholars, the primary knowledge of teachers is experiential rather than conceptual: “personal practical knowledge . . . is composed of such experiential matters as images, rituals, habits, cycles, routines, and rhythms: this mode of knowing the teaching and learning situations is re-collected from the narrative units that are units of the mind and
body, which is referred to as *minded practice*” (pp. 194–195). A great number of these experiential narratives has emerged from teachers’ encounters with various professional events in the context of their teaching: narratives are not developed in a vacuum. Eraut (1994) pointed out that “a personal knowledge base includes notes and memories of cases and problems which have been encountered, reflected upon and theorized to varying contexts and with varying significance for current practice” (p. 17).

From the practical knowledge perspective, the role of formal knowledge, or what teachers learn during formal training, is emphasized less. Regarding this, Loughran (2005) notes that, regardless of what is learned in the university or at school, teachers need their learning to be embedded in personal experiences because personal experiences of teaching are one of the most significant sources of knowledge construction in teacher education. In a more radical interpretation, practical knowledge may even be seen as anti-theoretical. For example, W. Carr (2004) has argued:

For Aristotle practical reasoning [knowledge] is not a methodical, rule governed skill that can first be taught in theory and then applied in practice. Instead, it is a capacity that can only be acquired by an individual who, in the course of being initiated into a particular practice, comes to understand that what she is doing is unavoidably directed towards the pursuit of some goods that is not related to the satisfaction of her own immediate needs and desires but it is internal to practice itself (p. 61).

From this perspective, therefore, teaching is a situational entity and teachers’ knowledge should primarily be based on demands of various situations in classroom life, particulars that cannot adequately be met by theoretical knowledge and cannot be learned in the abstract. In this way, practical knowledge may be also regarded “a moral and intellectual virtue rooted in a natural human being’s capacity to do the right thing in the right place at the right time in the right way” (MacIntyre, 1982, p.141). Kristjánsson (2005) points out that from this perspective the knowledge or theory that guides the praxis of teaching is “the practice-embedded theory of participant knowledge, as contrasted with traditional spectator-like theory from nowhere; the salvaged ‘theory’ being, if you like, of knowing practice”(p. 457).

Therefore, experiential orientation of teachers’ practical knowledge is embedded in its situational, personal, and moral particulars. In different situations teachers encounter various cases that need practical and context-based actions. In these situations and contexts teachers experientially learn over time, from reflection, how to deal with pedagogical demands, and thus develop practical knowledge. The experiential character of teachers’ practical knowledge is also rooted in the different ways teachers personally understand
pedagogical issues in the classroom. To characterize practical knowledge in this way is to emphasize the key element of a teacher’s responsibility: “the teacher is the ultimate practical authority on what students do in the classroom, and his practical knowledge is both the tool, and the outcome, of his ongoing effort to assume that authority in a responsible and personally meaningful way” (Elbaz, 1981, p. 58). Moreover, considering a moral or ethical dimension, in teaching teachers need to apply non-technical knowledge, which teachers most likely learn during professional experiences in individual ways.

1.4.1.2 The theoretical source of teachers’ practical knowledge

Even though professional experience is seen as an important source of practical knowledge, “it is likely that other sources are also relevant for the development of practical knowledge, such as the biography of teachers, formal knowledge learned during teacher preparation, and teachers’ norms and values” (Vries & Beijaard 1991, p. 377). Teachers, as practitioners, use “extra-individual sources as well as intra-individual sources” (Kemmis 2005, p. 403). Both kinds of information are integrated into a teacher’s practical knowledge over his or her career (Beijaard & Verloop, 1996). Perhaps various theories of teaching and learning and formal knowledge during the formal training of teachers are another important integral source of practical knowledge. The application of such theories, however, is not direct or simple; instead, teachers must deliberate about how instructional theories can be applied or adapted in different classroom situations. Elbaz (1981) has suggested that “the teachers’ view of theory may range from outright rejection … to deliberate, single-minded application of a particular theory. In between, there is a teacher who feels that theory is relevant but remote, or difficult to use; this teacher may draw on theories of practice rather than on distinctly theoretical formulations” (p. 59). Connelly and Clandinin (1985) take a similar stance and argue that, in the act of teaching, “there is no separation of theory and practice. The act is not the application of theory in practice; it might be called theory-in-action. More accurately, it is narrative-in-action…theory and practice are unified in the actor through her narrative unities of experience” (184). In such understanding, these scholars have tended not to reject the role of theory in practice; rather, they have argued that the theoretical background of practitioners has a place in their minds that has become part of their personal narrative. In a similar interpretation, Kristjánsson (2005), drawing on the phronesis-praxis perspective on teaching argues:
While being “anti-theory” and “anti-methods” with respect to the ideals embodied in the allegedly reigning enlightenment notion of (scientific) method and (applied) theory, the *phronesis-praxis* perspective does not simply reject wholesale all theory and method. But there is still room for theory in a non-traditional sense, theory that is practice-confined. Educational practice is always, it is readily admitted, guided by some theory, but such theory is internal to the practice and liable to all exigencies of the latter. The relevant theory is not something that a *spectator*, a third-person theorist, could analyze and evaluate, but rather something that has to be lived through by a *practitioner* (p. 458).

From this same point of view, Dunne (2005) posits that “a practitioner is the person of “judgement”, and thus judgement is more than the possession of general knowledge [i.e., knowledge codified in rules and formulae], just because it is the ability to actuate this knowledge with relevance, appropriateness, or sensibility to context” (p. 376). Accordingly, formal knowledge gives basic knowledge and information to teachers so that they can integrate this knowledge into their practical knowledge in order to guide their practice. Formal and theoretical knowledge functions like a lantern that one uses in a gloomy situation to recognize the general route. Thus formal and theoretical knowledge illuminates the general directions of teaching and may tell less about the situatedness of the classroom. Thus, teachers need to localize and integrate this knowledge into their particular situations and professional experiences in order to use it and function effectively.

### 1.4.1.3 The social sources of practical knowledge

Teaching as a profession has a variety of “meta-sources” for informing its associated practice and knowledge. “These include social and discursive features that make practices the collective ‘property’ of groups, not just ‘possessions’ of individual practitioner” (Kemmis, 2005, p. 393). Teaching is a social practice because it is not shaped only by an individual teacher, “but also by the expectations, intentions, and values of clients and others that the practice [of teaching] is intended to serve” (ibid., p. 393). Thus, the knowledge developed by the practice of teaching has its roots in social practice. Due to this salient feature, Husu (2005) notes “a growing number of educational scholars have shifted their attention on teacher knowledge away from the individual perspective and have begun to explore teacher knowledge as socially negotiated” (p. 117). This perspective on knowledge construction has challenged the dominant status of the more-emphasized personal character and individualism of teachers’ practical knowledge (Tirri et al., 1999; Yinger & Hendricks-Lee 1993). Drawing on Ball, Putnam and Borko (2000) pointed out:
The common view that “each teacher has to find his or her own style” is a direct result of working within a discourse of practice that maintains the individualism and isolation of teaching. This individualism not only makes it difficult to develop any sense of common standards, it also makes it difficult to disagree. Masking disagreements hides the individual struggles to practice wisely, and so removes an opportunity for learning. Politely refraining from critique and challenge, teachers have no forum for debating and improving their understandings. To the extent that teaching remains a smorgasbord of alternatives with no real sense of community, there is no basis for real and helpful debate. This lack impedes the capacity to grow (p. 9).

Therefore, the view of knowledge as embodied within individuals should not be interpreted as an isolated view. Each person both shapes his or her knowledge and is shaped by the knowing practices of others (Tirri et al., 1999), teachers’ practical knowledge is thus not static but is closely related to the other systems with and in which it interacts. This argument is mainly based on the fact that teachers’ practical knowledge has its roots in social entities insofar as teachers experience their professional life within a community of teachers and with other collective contexts in a given society (see also Avis 2003; Yinger & Hendricks-Lee 1993).

From this perspective, “teaching is regularly conceptualized as ‘practice’ and so involved in ‘communities of practice’” (McLaughlin 2003, p. 339; see also Lave & Wanger, 1991; Wenger, 1998), wherein teachers as practitioners engage in what Habermas (1996) calls communicative action. In other words, teaching is the kind of action that is “oriented towards reaching intersubjective agreement, mutual understanding, and unforced consensus about what to do in a particular situation” (Kemmis 2005, p. 414). In this way, one significant mode of shaping the social base of teachers’ practical knowledge is communicative participation in the formal and informal professional activities in the school and with teachers in other schools, specifically with the community of those who teach the same subjects. “By participating in the networked relations, the individuals will be able to develop their own personal and professional capital as a teacher and therefore will be enabled to become a more effective practitioner” (Avis 2003, p. 376). This network of relations enables teachers to share their knowledge and experiences with educational practices, both successful ones and failures. In this way, it is the cooperation in the community of practice that leads to the empowerment of what is called “collective intelligence” (Yinger and Hendricks-Lee, 1993). Thus, professional cooperation in various school contexts is one major source of the social base of teachers’ practical knowledge. However, teachers’ practical knowledge is believed to be shaped by other discourse communities in the society as well.
Another way of understanding the social base of teachers’ practical knowledge is to look to the society’s public sphere. In this sphere, teachers’ learning for teaching is seen to be social in that it take place as the result of interaction with other cultural contexts, people, and groups, and through participation in numerous discourse communities (e.g., scholarly disciplines, particular interest groups) over time during which individuals are provided with cognitive tools such as ideas, theories, and concept (Putnam & Borko, 2000). These “discourses are frameworks for thought and action that teachers draw upon as they speak of their work with others. They are culturally and socially generated patterns of thinking and acting that are authorized by their distinct professional code” (Husu 2005, p. 117). Discourse communities, moreover, can represent the social and distributed nature of teachers’ learning to teach (i.e., knowledge is distributed between individuals, other persons, and various artifacts, such as physical and symbolic tools) and can address unsolved educational issues by means of, for instance, technological tools (Putnam & Borko, 2000). The social base of teachers’ practical knowledge is so important that even though scholars (e.g., Elbaz, 1981; Connelly and Clandinin 1985) who strongly advocate the personal and experiential character of teachers’ practical knowledge also acknowledge that teachers’ knowledge is embedded in social contexts. Elbaz remarked that, “like any other ordering experience, teachers’ knowledge is socially conditioned” (1981, p. 55). Connelly and Clandinin have also pointed out that teachers’ practical knowledge is embedded in cultural and historical narratives.

The social base of teaching is therefore a kind of epistemic understanding, indicating that teachers’ practical knowledge does not happen in a vacuum and isolation. Rather, as Yinger and Hendricks-Lee (1993) describe, it is an ecological intelligence in which knowledge becomes available in particular activities and events in classroom life, and it is constructed jointly by participants and systems for example, cultural, physical, personal, social, and historical systems. Personal practical knowledge then is a “set of predispositions and personal knowledge that teachers bring from their private life to the public act of teaching … and this continually evolving architecture-of-self is seen as having been learned or acquired through a life history of personal experiences of the teacher as a person interacting with a variety of contexts” (Yinger and Hendricks-Lee 1993, p. 112). The social, the experiential and personal, and the theoretical orientations are three significant sources of teachers’ practical knowledge and, taken together, comprise the first characteristic of it. Two other important aspects of teachers’ practical knowledge will be addressed below in order to establish the conceptual clarity of the research purpose.
1.4.2 The process of teachers’ practical knowledge

In the previous section, it was argued that teachers’ practical knowledge originates from different sources, including formal knowledge and theories, personal professional experiences, and meta-knowledge such as social and cultural contexts. It is generally believed that teachers reflect on the information from these sources and “transform” them in order to be “used” in real classroom situations. In a practical context like teaching all kinds of knowledge including, formal and theoretical, undergo a process of personalization in which some interpretations and uses become prominent, while others are neglected in order to meet the particular demands of each situation. Thus, “scientific knowledge generated outside of practice [that is teaching] may need to be adapted to fit the demands of a given situation” (Schwandt, 2005, p. 317). This process of adaptation requires more than a simple application of theory: “theories have to be interpreted in order to be used” (Erath, 1994, pp. 17–27). Sternberg and Caruso (1985) asserted that practical knowledge is used in three main forms of interaction with the everyday problems generated by self, others, and tasks: “adaptation that involves adjusting oneself to the press of situations…; shaping that involves shaping the environment so as to become more suitable to one’s needs; and selection that involves making a decision to select another environment that cannot be suited by adaptation and shaping” (150–155).

The personalization of knowledge arises from the fact that the teaching context is a dilemma-oriented practice. Such problematic practice, as mentioned by Dunne (2005), involves a kind of “difficulty or predicament rather than a problem…. In attempting to resolve problematic situations of this kind calculating the efficiency of different possible means towards an already determined end is not functioning. Rather, one is often deliberating about the end itself” (p. 381). Thus, teachers constantly deal with pedagogical and moral dilemmas, which need reflection and deliberation at different levels and in various ways. Russell and Munby for example, have viewed teachers’ reflective thinking as “reframing” existing theories that teachers apply in their practices in response to the challenging and puzzling problems they face in action. These researchers’ observations show that reframing is an integral part of a cycle in the development of teachers’ professional knowledge: “when an initial theory-in-action encounters puzzles or surprises, backtalk stimulates reframing, suggesting new actions that imply a revised theory in action” (p. 184).

It seems that many scholars talk primarily about the transformation or revising of knowledge in a general sense (e.g., instructional theories). In other words, they concern themselves with how teachers should adapt formal theo-
ries, for instance, of instruction and classroom management, into their particular situations. In his immense work, *Knowledge and Teaching: Foundations of the New Reform*, however, Shulman (1987) shows that such transformation is also necessary for content knowledge. He suggested that teaching is a pedagogical cycle in which transformation of knowledge or what is to be taught is a vital step. He also suggested a model of pedagogical reasoning and action, including several cyclic and non-hierarchical phases: comprehension of purpose and subject matter, transformation, instruction, evaluation, reflection, and new comprehension. In the transformation phase, teachers need to reframe content through four further steps: preparation, representation, selection, and adapting and tailoring to student characteristics. Accordingly, in any sense and from whatever source teachers’ practical knowledge originates, it is most often transformed in order to be used effectively in the volatile situations of the teaching context.

1.4.3 The content of teachers’ practical knowledge

From a general perspective, the content of teachers’ knowledge has been classified into several categories (e.g., Borko & Putnam; 1996; Calderhead, 1996; Grossman, 1989; Shulman, 1987). Borko and Putnam (1996) have organized these categories into three broad themes:

1. General pedagogical knowledge and beliefs, which “encompass a teacher’s knowledge and beliefs about teaching, learning, and learners that transcend particular subject matter domains” (p. 675). Teachers’ knowledge about classroom management, instructional strategies, and learning, learner and teaching is considered to be related to general pedagogical knowledge.

2. Subject matter knowledge and beliefs that are related to teachers’ knowledge about the facts, concepts, and procedures of a specific discipline.

3. Pedagogical content knowledge and beliefs: drawing on Shulman, Borko and Putnam (1996) have described this domain as “the ways of representing and formulating the subject that makes it comprehensible to others” (p. 676).

Such categorizations of teachers’ knowledge are not primarily related to practical knowledge. Rather they are primarily concerned with the general view of teachers’ knowledge and beliefs.

From a practical knowledge perspective, however, Elbaz (1981, 1983) was among the first scholars who specifically identified categories in a case
study of a high school English teacher called Sara. Elbaz described these categories as an imagery reflection of Sara’s cognitive style and classified them into five broad domains: curriculum, subject matter, instructional, teaching milieu, and self. Following Elbaz, other researchers (e.g., Meijer, 1999; Toom, 2006; Van Driel, Verloop, De Vos, 1998) have carried out empirical studies in which they address the content of teachers’ practical knowledge as the primary research task. In her study, Meijer (1999) found that the content of teachers’ practical knowledge includes knowledge about subject matter, general characteristics of students, student learning and understanding, purposes, curriculum, and instructional techniques (p. 49; see also Kennedy, 2004; Toom, 2006). Therefore, the empirical studies and theoretical contemplation show that the content of teachers’ practical knowledge is inclusive and encompasses a variety of phenomena and educational elements in the context of teaching.

1.5 The description of teachers’ practical knowledge

As a result of the argument on the different aspects of teachers’ practical knowledge (Sections 1.4.1–1.4.3), teachers’ practical knowledge can be described with the following characteristics:

- Teachers’ practical knowledge, even though primarily considered to be experiential, has other important sources. Formal knowledge, existing theories of teaching and learning, and meta-knowledge sources such as social and cultural contexts (e.g., community of practice and the general sphere of society) are among other important sources for teachers’ practical knowledge.
- In order to be used knowledge must be processed. All information from the various sources mentioned undergoes a process (e.g., intuitive or meta-cognitive reflection while teaching, and remote reflection after or before teaching) of personalization (i.e., adaptation and transformation) to be tailored to the practical teaching situations.
- The content of practical knowledge is related to a variety of educational phenomena in the classroom. Knowledge is generally concerned with general pedagogical issues, the content pedagogical knowledge, subject matter, the self, student characteristics, the curriculum, and educational purposes.
1.6 The definition of teachers’ practical knowledge

Teachers’ practical knowledge is a multi-faceted concept and it needs to be studied from different points of view and with various assumptions. “Given the range of different terms that are used in these studies and the equal number of definitions that can be found, it can be concluded that there is no agreement about the characteristics or the content of this kind of knowledge” (Meijer et al., 1999, p. 60). In the present study, I primarily focus on two basic features of teachers’ practical knowledge: its “function” and, its “cognitive form”. These two features explain the term “practical knowledge” as it stands. Specifically, I wanted to know what form of teachers’ cognition (e.g., personal beliefs and values or knowledge as defined in classic term, that is, true justified belief) implies the notion of “knowledge,” on the one hand and what it means for this knowledge to be “practical,” on the other hand.

1.6.1 The function of teachers’ practical knowledge

As stated, teachers acquire a bulk of knowledge in interaction with a variety of systems. This bulk of knowledge is then converted into practical knowledge in order to meet the practical and situational demands of teaching, which may include moral, pedagogical, personal, interpersonal, and managerial issues. Teachers’ practical knowledge constitutes “those beliefs, insights, and habits that enable teachers to do their work in schools.... it is time bound and situation specific, personally compelling and oriented toward action” (Feiman-Nemser and Folden, 1986, p. 512). It is simply working knowledge (Yinger and Hendricks-Lee, 1993) that guides action and is considered to be a key factor in success or failure of a teacher: the failure to develop sufficient practical knowledge will rapidly result in frustration and possibly early burnout (Sternberg & Caruso, 1985). At its simplest therefore, the function of teachers’ practical knowledge is to guide their actions when they encounter the critical question “what should I do in this particular situation?” “Teachers teach what each situation, each encounter, pulls out of their knowing” (Clandinin & Huber 2005, p. 43).

1.6.2 The cognitive form of teachers’ practical knowledge

Regarding its epistemic formation, teachers’ practical knowledge has been most often defined as including an amalgam of all teachers’ declarative and procedural cognitions such as beliefs, values, awareness, recollection, mo-
Research on teachers’ knowledge (e.g., Elbaz, 1983; Meijer, Verloop, & Beijaard, 1999; Zanting et al., 2003). Such interpretation is a kind of grouping or collective definition of practical knowledge (Fenstermacher, 1994). In other words, teachers’ cognition and aspirations are all taken for granted as having the same epistemic merit, thus deserving the label “knowledge.” The logic underlying this argument requires considering the ever-changing situations in the teaching context wherein teachers’ knowledge has to be dynamic accordingly; thus, knowledge may not be established in the form of fixed-true beliefs. The epistemology of practice is derived from such assumption: it acknowledges that all teachers’ understanding and learning through professional experiences, represented in their narratives and personal beliefs, deserve a researchable epistemic merit.

In a different way, Kennedy (2004) uses the term “practical intention” to refer to what guides teachers’ practice. Teachers’ practical intentions were reported to have four distinctive forms: “Fears and hopes where teachers may feel a greater sense of urgency to avoid those things they fear than to accomplish the things they hope for”; aspirations that refer to ideal things that teachers wanted to be; obligations for which teachers “felt obligated to their students, to their colleagues, and to society as a whole”; and “personal needs that teachers wanted to satisfy” (p. 15). Thus, the form of teachers’ practical knowledge may range over different cognitions that serve to guide their practice. Accordingly, based on these two features (i.e., the function and the cognitive form), teachers’ practical knowledge in the present study includes all forms of teachers’ cognitive claims (e.g., motives, values, aspirations, beliefs, declarative and procedural knowing) that have the function of guiding their actions in classroom situations. Teachers’ practical knowledge may originate from various sources (e.g., experience, teachers’ training programs), and its content can be related to various pedagogical elements (e.g., learners, teaching strategies, the self, subject matter).

1.6.3 The model of teachers’ practical knowledge

Teachers’ practical knowledge is believed to have three basic elements: source, process, and function. The relationship among these elements is not linear; rather it is a cyclic and ongoing process that includes five main stages. Figure 2.1 illustrates the nature of this process.
Figure 2.1 The model of teachers’ practical knowledge in this study based on theoretical and empirical backgrounds.

It shows that; (1) Teachers encounter the question “What should I do in this particular situation?” (2) Teachers have a bulk of information (sources) in order to deal with this situation. Professional experience is probably an important source for helping teachers to cope with the situation. However, information from other sources such as teachers’ training programs, and existing teaching and learning theories may be integrated into the experiential learning in order to interpret teaching and learning contexts. Social contexts and cultural values (i.e., meta-knowledge) are also influential in many teachers’ pedagogical decisions. (3) The information from any of these sources needs to be put into a mental process to be used in the situation. Such mental processes may happen while teachers are teaching. This kind of mental processes are intuitive by nature. In other words it is based on “meta-cognitive knowing” (Hofer, 2004), or “interactive cognitions” (Meijer, 1999; Toom, 2007). Schön (1991, 1995) calls this type of mental process as “reflection-in-action.” In addition to reflection-in-action, teachers may reflect on the different sources of knowledge after and before the real time of teaching in order to make educational decisions. This way of processing different sources of knowledge to become useful in practical contexts is what Schön calls reflection-on-action. These two kinds of mental processes are not a fixed systematic stable process; rather they are ongoing and procedural processes that happen during all moments of teaching practice. (4) Through these processes teachers make pedagogical decisions in response to the question, “what I do,” (5) from these pedagogical decisions teachers “learn how to teach,” thus
develop their practical knowledge. In the cycle of teachers’ professional development then, this practical knowledge becomes the new source of making pedagogical decisions when faced with the question, “what to do?”

1.7 Whats, hows, and whys of teachers’ thinking: concluding remarks

According to Batten (1993), teachers’ knowledge can be examined within a framework that includes “whats, hows, and whys” of knowledge. The “whats” deal with content; “hows” call for associated strategies; and “whys” show the reason underlying the associated content and strategies. The primary research task of the vast majority of the educational research on teachers’ thinking from the 1970s onward has been related to the “whats” and “hows” of teachers’ knowledge. These studies have mainly focused on two basic research tasks: what is the content of teacher thinking, and how is this thinking interpreted, reflected on, understood, and judged by teachers so that it leads to results in pedagogical actions and decisions? In other words, the “Whats” of teachers’ knowledge have dealt with what teachers “should know” (e.g., formal knowledge or what teachers need to acquire through pre-service and in-service training programs) in order to be effective teachers as well as what teachers themselves as professionals “know” (e.g., practical knowledge and what teachers have developed through professional experience) in order to teach. While intertwined with the “whats,” the “hows” of teachers’ thinking and knowledge have dealt with the ways in which teachers have acquired this knowledge and developed their thinking. Empirical studies under umbrella learning to teach, reflective practice, practical knowledge, teachers’ thought process, teachers’ interactive thinking all can be jointly considered related to the “whats” and “hows” of teachers’ knowledge and thinking.

The “whys” of teachers’ thinking and knowledge, however, have been less researched as a primary task in examining teachers’ thinking and knowledge. “Paradoxically, we expend a great deal of money and effort to assess exactly what people think on a whole range of social issues, but devote very little to understanding why they think this way; that is, what the reasoning is behind the opinion they profess” (Kuhn, 1992, p. 156). In teaching, it is very important to know what rationales, grounds, and bases teachers have for their pedagogical decisions. Teachers’ reasoning is theoretically a critical aspect of their thinking and has an important role in their professional development. Fenstermacher (1986, 1987) was among the first scholars introduced a framework for researching teachers’ reasoning. Studies with the conceptual
framework of practical arguments (e.g., Fenstermacher & Richardson, 1993; Morine-Dershimer, 1988; Vasquez-Levy, 1998) have primarily been related to the practical arguments that underlie teachers’ knowledge and action. The main research task of the present study is also concerned with the nature and structure of the reasoning that teachers use to support their practical knowledge.

Accordingly, there can be three basic applications in research of teachers’ knowledge and thinking. By conducting the what-type research on teaching, researchers can obtain insight into the content of teachers’ cognition and thereby help teachers develop their profession by providing the basis for generating a knowledge-base for teaching. The “hows” of teacher thinking deals with the processes engaged in teacher thinking. How-type research on teacher thinking gives more theoretical insight into teacher thinking and cognition, which then has application for teacher educators in the training of prospective teachers. The why-type research deals with the grounds and rationales underlying teachers’ pedagogical decisions. If we consider teaching to be a normative activity, then the why-type research on teacher thinking and particularly on teacher practical knowledge is essential. The sound rationales of teachers can be used as a further tool for developing teacher pedagogical knowledge, while poor reasoning can be improved upon by further steps from the teachers’ and educators’ side as well. The next chapter deals with the “whys” of teachers’ knowledge from a theoretical perspective.
2 Epistemology of teachers’ practical knowledge

This chapter deals with the theoretical and empirical backgrounds of task central to the present research. In the theoretical background, I have studied practical knowledge from a neo-Aristotelian point of view wherein the epistemic nature of practical knowledge is discussed within a *phronesis-praxis* perspective. The practical argument is another conceptual framework for understanding teachers’ practical knowledge. In the empirical background, I have reviewed those studies whose central task is to addresses the epistemology of practice or practical reasoning in the field of teaching.

2.1 Theoretical framework

“Epistemology” is a branch of philosophy connected with the nature and scope of knowledge, and with the general reliability of claims to knowledge (Hamlyn, 1967). The central task of this academic discipline is thus to determine what types of justification underlie the knowledge claims in various domains. Historically the foundational system of justification has dominated epistemological studies in philosophy. According to Goor, Heyting, and Vreeke (2004), the foundationalist model of justification arranges assertions in a hierarchical structure whereby a group of grounds or foundations are considered to be self-justificatory because of their special epistemological superiority. From this perspective, a second group of assertions or knowledge claims is only justified in light of the foundational justification.

The application of the foundational system of justification in theoretical or what I call paradigmatic knowledge is widely acknowledged. By contrast, in practical domains like teaching, such application faced challenges. The problem is that the situational knowledge derived from teaching contexts may not be justified based on foundational or universal grounds. However, it is believed that teachers with the claim of holding practical knowledge still need to prove that they are not in “error.” Fenstermacher (1994) has emphasized that:

Justification of performance knowledge is every bit as important to its epistemic status as it is in the case of propositional knowledge, and that such justification is not simply in the performance of the skill or the craft, but also in establishing the reasonableness of the performance and the evidence connecting its purpose to its eventual outcome…. Both teacher formal knowledge and teacher practical knowledge are subject to evidentiary scrutiny if they are to count as knowledge in any useful sense of the term. …. That we claim to have practical knowledge does not
relieve us of the obligation to show how it is objectively reasonable to believe what they are contending (pp. 27–28).

Epistemological studies in teachers’ practical knowledge do not, however, follow the same criteria and procedures as those of propositional knowledge. In other words, the concept of “true justified belief”, which is central to traditional epistemology regarding a propositional knowledge claim, may not be applied to the practical mode of knowledge claims in teaching. Boyles (2006) has argued that epistemological studies in education with regard to classroom practice are rare because epistemology has come to be seen from a traditional point of view that focuses on “true knowledge.” Drawing on Dewey, Boyles has points out that traditional definition of epistemology should be replaced by the new version of epistemology namely “warranted assertibility”:

Warranted assertions replace justification in the traditional syllogism while at the same time imploding the syllogism itself. Where justification served a correspondence theory of the truth in the traditional account of the knowledge, warranted assertions merge truth and inquiry together in such a way that correspondence to an external world is no longer point. The point, instead, is the interdependency of truths and the process of inquiry: the temporal satisfaction of the solved problems in a world that is not set apart from the knower’s use(s) of the world or place(s) (p. 61).

Teachers’ practical knowledge, from the same perspective, relies on a contextual system of justification because the educational events in the context of teaching are unpredictable since they are changing most of the time. In this volatile context, the knowledge claim of teachers is bound with the situational character of life in the classroom. For this reason, the majority of philosophers of education, according to Van Goor et al. (2004), highlight that justification of knowledge claims in education and teaching is embedded in the personal and social contexts in which individuals work, and these philosophers of education “still treat justification as a process of giving reasons…and maintain that the validity of reasons, and the processes in which giving reason takes shape, will vary based on the contexts” (p. 182). According to these scholars, justification of knowledge claims in education and teaching is represented in three contextual perspectives. (1) Context as meaning-context in which philosophers of education frequently refer to the philosophy of Jacques Derrida specifically his notion of “difference.” “On this view, meaning is not based on external reality; rather the process of drawing distinctions or differences is the decisive factor in attaching meaning to objects or events. Consequently, the concept of justification itself can only be understood as the result of contingent distinction.” (2) Context as personal
context is the second way of contextualizing justification (reason) in which “the reasons that can be used to justify assertions should be understood as related to the personal point of view of the speaker.” (3) The context as a discourse-context is the third type of context wherein reasons and their validity is restricted by the “communicative discourse” in which they are employed (pp. 183–184).

Therefore a fixed, universal, and very systematic methodology may not be needed in order to justify practical knowledge in the same way that propositional knowledge has always been. Rather teachers may need to offer “good reason” and “wise judgment “to support their practical knowing. Fenstermacher (1994) called this form of justification as “good reason-approach” and noted that:

Such approach is derived from what Aristotle called *phronesis*: deliberative reflection of the relationship between means and ends…. *Phronesis*, or practical reasoning, is well suited to addressing some demands for epistemic warrant within practical discourse. The provision of reasons, when well done, makes action sensible to the actor and the observer. This is a minimal form of warrant for practical action. Such reasoning may also show that an action is, for example, the reasonable thing to do, the obvious thing to do, or the only thing one could do under circumstances…. The nature of justification [in practical reasoning] shifts from the presentation of evidence, analogous to the uses of evidence in formal knowledge, to the development of “good reasons” (pp. 44–48).

From the same point of view, most neo-Aristotelian philosophers of education (e.g., W. Carr, 2004, 2005; W. Carr, & Kemmis 1986; Dunne, 2003, 2005; Hamilton, 2005; Kemmis, 2005; Noddings, 2003; Schwandt, 2005) argue that teaching is a kind of practice closer in meaning to the Greek term *praxis* (i.e., it is practice that has internal good) and can be best understood within the conceptual framework of *phronesis* or practical reasoning. “The crucial move of the *phronesis-praxis* perspective is, then, to link educational reasoning and reflection to *phronesis*, and education [teaching] itself to *praxis*. Education is not a theoretical activity, but a practical one: practical not in the sense of *poiesis* [i.e., making or production], which is ‘guided by fixed ends and governed by determinate rules, but rather in the sense of *praxis* which is more comprehensive and open-ended” (Kristjánsson, 2005, pp. 456–457). In this sense, *phronesis* or practical reasoning is one way of supporting practice and knowledge of teachers within the contextual system of justification.
2.1.1 Phronesis or practical reasoning

According to Aristotle (1934), “there are five qualities through which the mind achieves truth in affirmation or denial, namely Art or technical skill, Scientific Knowledge, Prudence, Wisdom, and Intelligence” (p. 333 [iii–2]). Drawing from Aristotle, W. Carr (2005) distinguishes three forms of human action: “theoria (contemplative action aimed at the discovery of truth), poesis (instrumental action governed by pre-determinate ends), and praxis (morally informed action, in and through which ethical goods are realised).” There are in turn “three kinds of reasoning appropriate to them: episteme (theoretical reasoning), techné (technical reasoning that follows methodical rules) and phronesis (practical reasoning based on wise and prudent judgment) (p. 340). This distinction has resulted in productive and healthy debate on epistemological studies in the realm of education, specifically in teaching. In the present study, I review the concept of phronesis in connection with teaching in general and teachers’ practical knowledge in particular.

For Aristotle (1934), phronesis or prudence is concerned with human action or the matters of conduct. Thus, the rationality of phronesis in dealing with humans’ conducts differs from scientific knowledge and technical skills. “It [phronesis] is not Science, because matters of conduct admit of variation; and not Art, because doing and making are generically different, since making aims at an end distinct from the act of making, whereas in doing the end cannot be other than the act itself: doing well is in itself the end.... It therefore follows that prudence [phronesis] is a truth attaining rational quality, concerned with action in relation to things that are good for human beings” (pp. 337–339 [3–4]). In an illuminating paper, On Phronesis, Alessandro Ferrara (1987) analyzed phronesis from different perspectives, such as scientific practice, post-conventional moral judgment, Habermas’ communicative paradigm, and Wittgenstein’s theory of language games. The common feature of the concept of phronesis in these paradigms is the capacity of the actor to pass judgment on competing values in the absence of general guidelines or criteria. Ferrara noted that “by the term phronesis I understand the competence to choose between conceptual schemes which embed incompatible or differently ranked values in situations where no a priori standards can be invoked” (p. 251). From the same standpoint Dunne (2005) has described phronesis as the practitioners’ ability to judge particularity of a situation: “If one wants an English equivalent of phronesis, perhaps ‘judgement’ is the best candidate.... Judgement is an ability to recognize situations, cases, or problems, which are perhaps of no clearly specific kinds and to deal with them adequately and appropriately. A person of judgment respects the particularity
of the case, and thus does not impose on it a Procrustean application of the general rule” (p. 376).

*Phronesis*, in this meaning, is thus about dealing with unpredictable kinds of problems and what Kemmis (2005) calls “uncertain practical questions.” Drawing on William Reid (1978), Kemmis notes that practical questions have seven features:

- First they are questions that have to be answered—even if the answer is to decide to do nothing...second, the grounds on which decisions should be made are uncertain... third, in answering practical questions, we always have to take into account some existing state of affair. We are never in a position to make a completely fresh start, free from the legacy of the past history and present arrangements. Fourth, and following from this, each question is in some way unique, belonging to a specific time a context, the particulars of which we can never exhaustively describe. Fifth, our question will certainly compel us to adjudicate between competing goals and values. We may choose a solution that maximizes our satisfaction across a range of goals, but some will suffer at the expense of others. Sixth, we can never predict the outcome of particular situations we choose, still less know what the outcome would have been had we made a different choice. Finally, the grounds on which we decide to answer a practical question in a particular way are not grounds that point to the desirability of the action chosen as an act in itself, but grounds that lead us to suppose that action will result in some desirable state of affairs (pp. 404–405).

Teaching is an ever-changing job, involving in such practical and uncertain questions. The uncertainty of problems in teaching originates from the very complicated relationship among various elements in every particular context. A teacher comes to the classroom with a particular background, education, professional knowledge, and personal beliefs about teaching, learning, the curriculum, students and other components of the profession. Students are also different in their learning abilities, interests, motivation, cultural and family backgrounds, and other important features. Moreover, the curriculum, educational system, and socio-political situations at the most general level escalate the uncertainty and unpredictability in the teaching context. On this basis, as noted by Pendlebury (1990), the world of teaching as practice is characterized by three central, related features: practice is “mutable” because it changes over time, presenting us with new configurations that cannot be ignored if our deliberations are to be sound. The world of practice is “inde-terminable” because practical questions necessarily arise within particular contexts. The third feature is the “particularity” that comes from the previous features and makes practice particular for making any decision (see also Schwandt, 2005).
From the *phronesis-praxis* perspective, because the context of teaching is embedded with such complexity, teaching may not be regarded as *poiesis* governed by instrumental reasoning whereby teachers determine the clear-cut “goals of practice in advance and then look for finding the most efficient, effective and humane means to meet that end” (Schwandt, 2005, p. 316). Rather as *praxis* teaching is governed by the kinds of reasoning in which the means and ends stand in reciprocal position. The “end of practice [teaching], then, is some ethically worthwhile good practice that is internal to, and inseparable from, the practice and only exists in the practice itself. It follows from this that the ‘good’ that constitutes the ‘end’ of practice cannot be ‘made’, it can only be ‘done’” (W. Carr, 2004, p. 61). This kind of reasoning is called “constituent-to-end reasoning” (Pendlebury, 1990) by which the practitioners, including teachers, appreciate the ever-going changes in the different situations. Kemmis (2005) talks about two distinctive conditions in which changes happen in practice: subjective conditions in which changes will happen to the practitioners’ way of thinking and interpretation of a situation and in the ways others in the same situation appear to think and interpret events; and objective conditions, which include changes in material circumstances, recourses, and similar aspects of objective reality. “One might say that wise practitioners stay open-eyed (to changing objective conditions) and open-minded (about changing subjective conditions): they set out to conduct their practice alert to whatever might become salient to their reading of themselves, their understanding and their situation” (p. 407).

In conclusion and with regard to the central task of the present study, from the *phronesis-praxis* perspective, teachers’ reasoning about the “end” of practice is inseparable from their reasoning about their practical knowledge, which constitutes the means for achieving their end. Practical knowledge and its corresponding actions are considered to have internal “good” and to stand in a constitutive relationship to ends. In this sense, practical knowledge is not a general and universal theory that teachers can apply in many particular situations. Rather it is a cognitively professional competence that guides actions based on sound judgment in order to read the particularity of situations in the absence of general guidelines and standardized criteria.

Drawing from Aristotle but in a way different from the *phronesis-praxis* perspective, Fenstermacher (1986, 1987) and Fenstermacher & Richardson (1993) introduced a conceptual framework “practical arguments” in order to study the reasoning underlying teachers’ practical knowledge. In the next section, I will review this theoretical framework, which has been the basis for further empirical study of teachers’ reasoning.
2.1.2 Practical argument

In his presidential address to the Philosophy of Education Society, Green (1976) stated that “the competencies needed by a successful teacher in instruction are those needed to do whatever is required, within moral limits, to (1) change the true value of the premises in the practical argument in the mind of child, or to (2) complete those premises, or to (3) add to the range of premises accessible to the child in the information of practical argument” (p. 250). A decade later, echoing Green, another philosopher of education, Fenstermacher (1986) wrote that “the value of educational research for educational practice is the help it provides in ‘identifying what is required to change the truth value of the premises of the practical argument in the mind of the [teacher], or to complete or modify those premises or to introduce an altogether new premise into the practical arguments in the mind of the [teacher]’” (p. 43). Practical argument, thereafter, was introduced into educational research as a theoretical framework in order to study the epistemological dimension of teachers’ practice.

Practical argument is derived from Aristotle’s account of “practical syllogism” to explain and improve teachers’ reasoning about pedagogical decisions, and it differs from practical reasoning. While “practical reasoning describes the more general and inclusive activities of thinking, forming intentions and actions, practical argument is the formal elaboration of practical reasoning”; it has a specific structure, including a series of reasons (i.e., premises) that are connected to a concluding judgment or action (Fenstermacher & Richardson, 1993, p. 103; see also Audi, 1989, p. 95). “Practical reasoning is a process of thinking and occurs in response to the question, what should I do; practical argument is the pattern of premises and inference which constrains and gives us an access to processes involved in the corresponding pieces of practical reasoning” (Pendlebury, 1990, p. 171.)

The use of the practical argument perspective in the context of teaching is based on a distinction Fenstermacher (1986) made between the logic of knowledge production and the logic of knowledge application on the one hand, and descriptive (i.e., what teachers do and reason about doing) versus normative (i.e., what teachers should or ought to do to improve their reasoning) notions of teaching, on the other hand. Regarding the former, he noted that the existing research methodology, including quantitative and qualitative, suffers from different problems when used in educational research (e.g., dismissal complexity of human behaviour by quantitative research and issues related to generalizibility and validity in qualitative research). He then noted that “methodological pluralism in educational research becomes a feasible and justified position when a clear distinction is made between production of
knowledge and application or use of knowledge” (p. 43). The practical arg-
ument perspective is considered the basis for realizing such distinction in that
knowledge produced by researchers can be applied to educational practice to
improve the truth value of premises in the minds of teachers.

Moreover, practical argument is considered to be a conceptual tool to help
teachers elicit their descriptive statements about their practice (i.e., falsifiable
statements that attempt to describe the existing reality) and then to revise it
into normative premises (i.e., premises that affirm how things should or
ought to be). In a descriptive sense, “practical arguments are descriptions of
practical reasoning that the agent indicates are fair and accurate accounts of
why he acted as he did”. The normative sense refers to the fact that “practical
reasoning, and practical arguments, can be improved” (Fenstermacher &
Richardson, 1993, p. 104). Practical argument in this sense includes two
different stages: elicitation of premises and reconstruction of premises. The
elicitation and reconstruction of teachers’ premises is usually done through
the mutual relationship between a teacher and a dialogical partner who is
called “the other,” e.g., a researcher, a mentor, a fellow colleague (ibid).
Therefore, practical argument may be considered a basic tool for teachers’
professional development through moving from the descriptive status in
teaching to the normative status. Practical argument as a basis for profes-
sional development has become a framework for conducting empirical re-
search on teachers’ reasoning.

2.2 Empirical studies

Research on teachers’ thinking has primarily focused on the “whats” and
“hows” of teacher knowledge as it is noted earlier. In other words, the
“whats” of content of teacher knowledge (e.g., whether content concerns
learners, the curriculum, the self etc.), and the “hows” of content (e.g.,
whether content is developed through reflection, experiences, teacher training
programs) have been at the core of research on teacher thinking. The “whys”
of teacher knowledge and specifically the so-called practical knowledge,
however have been studied less often. In other words, educational researchers
have paid less attention to the reasoning behind teachers’ practical know-
ledge: what reasons teachers give to support their practical knowledge and
thus, their practice. Since the 1970s, when research on teacher thinking in-
creased, “practical argument” has been one of the specific theoretical frame-
works for conducting empirical research on teachers’ reasoning. Fenster-
macher and Richardson (1993) found that a practical argument has a specific
structure that includes four types of premises and an action or intention to act:
I The value premises—a statement of the human benefit or good to be derived as a result of performing this action. The premise may be phrased as a declarative statement (My goal is to help children to become successful human beings), or as an imperative (Every child must learn to read).

II The stipulative premise—a statement or set of statements that defines, interprets, and establishes meaning. Sometimes these premises arise from existing theories. Sometimes these premises arise from theory…. (e.g., Reading is being able to orally read a passage of text with accuracy)

III The empirical premises—a statement or set of statements, subject to empirical study, to test. These statements can be confirmed or denied using methods common in sciences (e.g., Students whose parents read to them when they are young will learn how to read faster than students whose parents do not read to them).

IV The situational premises—a set of statements that describes the context in which the action takes place.

V An action or intention to act—the conclusion of practical argument (106–107).

Some other researchers (e.g., Fallona & Johnson, 2002; Morgan, 1993; Morine-Dershimer, 1987, 1988; Vasquez-Levy, 1993, 1998) found the same results in their empirical studies of teachers’ practical arguments. The findings they reported indicated that practical arguments, including different premises (i.e., value, empirical, stipulative, and situational) were readily identifiable in a large proportion of the comments made by teachers. In her study, Morine-Dershimer (1988) discussed pedagogical events while student teachers were teaching. The mean number of pedagogical events discussed for each lesson was 19.8. The mean number of practical arguments offered for each lesson was 11.9. This study also indicated that student teachers demonstrated different premises in their practical arguments. The most prevalent types of premises of the student teachers’ practical arguments were situational premises and value premises. The findings of this study also indicated that the premises in the practical arguments of student teachers were related to concepts associated with research on effective teaching, thus showing the presence of “objectively reasonable beliefs” in their reasoning (Morine-Dershimer, 1988, pp. 222–228). The practical argument perspective, therefore, has been believed to be one of the structures in teachers’ reasoning when they want to justify and discuss their pedagogical decisions embedded in their practical knowledge.

Teachers’ practical reasoning however represents other patterns of thinking when teachers try to discuss the grounds on which they make practical
knowledge claims. Kennedy (2004), in an illuminative empirical study, explained that there are different layers in teachers’ thinking when they talk about their practical intentions: First, teachers see a situation and try to “read” or “interpret” that situation so that they can act on the situation or have an intention to act on it; second, the next layer is a set of accumulated principles of practice about how to respond to certain situations; third, teachers often justified their principles of practice by referring to a set of standing beliefs and values (See also Alexanderson, 1994; Harrington, 1995; Tirri et al., 1999). Kennedy’s (2004) study has some features in common with the practical argument perspective in that teachers based on their practical principles and their standing values act on different situations or have intention to act. In other words, different premises in the practical argument perspective may correspond to accumulated practical principles, and to standing beliefs and values in Kennedy’s study. For example many of value premises may be embedded in teachers’ standing values and beliefs. Also in both perspectives there is an action or intention to act.

Along with the patterns and structure, the content of teachers’ practical reasoning is an important aspect that has been reported in empirical studies. In Kennedy’s study, (2004; see also Morine-Dershimer,1988 ) teachers’ practical intentions were reported to be based on six significant areas: content coverage and learning outcomes, methods of fostering student learning, maintaining lesson momentum, fostering student willingness to participate, the classroom as community, and teachers’ own personal needs. It may be said that teachers warrant their practical intentions and practical knowledge on the basis of these categories. In this case, maintaining lesson momentum, for example, is a basis for any further action or intention to act.

In another study, Tirri et al. (1999) reported that the nature of teachers’ justifications for supporting their practical knowledge is both moral and professional. In the moral stance, teachers justified their practical knowledge based on the social load of their practice, the goodness of the practice for pupils, and hope and commitment to their practice. In other words, in the moral dimension, teachers argued that they took particular courses of action because these actions were based on social values and norms, they were in pupils’ favour, and they represented teachers’ obligations and commitments to the job of teaching as a whole. The professional stance of justifications was based on the “rules of practice” and “practical principles.” Other researchers (e.g., Elbaz, 1981 & Kennedy, 2004) have also reported that a significant proportion of teachers’ practical knowledge is based on practical principles and rules of practice. The rules of practice and the practical principles were considered to be bases for teachers’ pedagogical decisions in that they were proven to be effective and have causal functions in learning activi-
ties. These rules and principles are “specific rules of thumb about how to achieve certain goals, how to respond to certain situations, and what to expect from students in particular situations” (Kennedy, 2004, page was not mentioned in original paper).

Thus, the findings reported in the above-mentioned studies indicate that there have been different grounds on which teachers have relied for supporting their actions. There is room however, to understand fully what is the nature and structure of these grounds. The main target of the present study is to address this important task in research on teachers’ thinking.

2.3 Conclusion of chapter two

In the present study, I address teachers’ reasoning in order to examine the epistemology of teachers’ practical knowledge. I reviewed the epistemology of teachers’ practical knowledge from two aspects: theoretical and empirical backgrounds. Drawing on Aristotle’s concept of *phronesis*, I examined two perspectives: the phronesis-praxis perspective and the practical argument perspective. While the *phronesis-praxis* viewpoint provides a philosophical framework for understanding whether teaching as *praxis* has an internal good or whether it is a means to meet some other good outside practice, the practical argument perspective provides a concrete conceptual framework to study empirically how teachers justify their practice to themselves and to others. In the *phronesis-praxis* stance, teaching is seen to be bound to very situational contexts; thus, it is impossible to impose universal premises and what they called “spectator knowledge” to weigh whether teachers are in error. In this view, sound judgment is the hallmark of understanding the epistemic nature of teachers’ practical knowledge or what is called practitioner knowledge. By contrast, in the practical argument perspective, teachers’ arguments for supporting their practice and knowledge may include false or incomplete premises, even in a particular situation. The situational character of teaching does not relieve teachers from showing that their actions are reasonably good. Thus, a dialogical partner may help teachers correct, reconstruct or complete their argument based on results from educational research and theory. In this way, knowledge produced by a third party spectator can be used by teachers to improve their arguments through dialogue and discussion with a dialogical partner who is called “the other”. Along with these theoretical viewpoints, empirical studies of the epistemology of teachers’ practical knowledge have indicated that teachers rely on different grounds in order to support their practical knowledge.
3 The methodological logic and practice of the research

This chapter deals with the methodological logic and practice. The logic of the methodology indicates the consistency of the research strategy vis-à-vis the knowledge claim assumptions that lie behind this study, on the one hand, and vis-à-vis the research methods on the other hand. The methodological practice addresses the conduct of the study in terms of the approach (e.g., qualitative design), the methods (e.g., methods of data collection, data analysis), the participants, and the procedures that are chosen. Therefore, in this chapter the following questions are addressed in order to illustrate the study’s logic and the practice:

1. How the research strategy is connected to the knowledge claim assumptions?
2. What are the research approach, methods, participants, and procedures?

3.1 The issue of consistency in methodological and epistemological knowledge claims

It is often said that the “nature” of research problems differs in various fields of study, and thus there are different underlying knowledge claim assumptions. Accordingly, there should be different approaches and strategies\(^2\) to deal with various research problems. From this point of view, it can be asserted that some research strategies are more “appropriate” than others to conduct a given study in order to make “valid knowledge claims.” In addition, the consistency between research strategy and research approach with knowledge claim assumption helps the researcher make sure that the “knowledge” produced in a given study is mainly the result of the “practice” of study. For example, qualitative designs may be more suitable than quantitative or experiments designs for producing knowledge in social sciences, even though in many cases quantitative strategies can help researchers obtain more insight into the research problem. Because problems in social sciences are very complex and multifaceted, it is difficult to make knowledge claims such as examining the “effect of research interventions on social problems” (e.g.,

\(^2\) In this research, research strategy refers to the main and basic research policy (e.g., whether it is a phenomenography, grounded theory etc.), research approach refers to qualitative, quantitative, and mixed approach alternatives, and research methods refer to data collection, data analysis, and other practical actions needed.
to examine the effect of a given intervention on changing students’ stereotypes). This does not necessarily mean that there is a clear-cut border between the different fields of inquiry, but it does show that one needs to demonstrate how the methodological decisions are linked to the knowledge claim assumptions, and to show as well that there are right strategies of inquiry to meet the demands of the research. In a particular way, Creswell (2003) has indicated that there are three central questions to be addressed in a research design:

1. What knowledge claims are being made by the researcher (including the theoretical perspective)?
2. What strategies of inquiry will inform the procedures?
3. What methods of data collection and analysis will be used? (P. 5)

3.1.1 Knowledge claim assumptions in the present research

With these elements, researchers can make appropriate methodological decisions in different phases of conducting their research. The central concept embedded in the present research task is “teachers’ practical knowledge.” The task, in other words, is to examine something (i.e., the epistemic nature) about teachers’ practical knowledge. Therefore, the knowledge claim assumptions of the research are mainly connected to the theory of teachers’ practical knowledge. The notion of teachers’ practical knowledge is based on progressive and constructive theories of teachers’ knowledge. According to these theories, producing knowledge about good teaching is not solely the property of teacher educators and educational researchers. Teachers themselves also have active roles in developing knowledge about good teaching. The main objective of this research is to gain insight into the epistemic nature of teachers’ practical knowledge. More precisely the research will examine the justifications that lie behind this type of knowledge. There can be at least two knowledge claim assumptions in studying this phenomenon (i.e. the epistemic nature of teachers’ practical knowledge). We can either choose to study the epistemic nature of teachers’ practical knowledge or we can choose to study the epistemic nature of teachers’ practical knowledge from the teachers’ point of view: how they have experienced, perceived, and understood it. The former knowledge claim deals with studying and understanding the inherited reality of the phenomenon; the latter is oriented toward the teachers’ ideas of the research problem as they have perceived it and thus may not reflect the “essence of reality,” however it provides empirical knowledge to describe a part of reality and move toward an initial understanding of the phenomenon. The very knowledge claim of the present study
is in accord with the later assumption. In other words, the knowledge produced by this research reflects the teachers’ ideas of the epistemic nature of their practical knowledge as they have experienced it. The researcher may “share” in this perception when he analyzes and interprets teachers’ ideas about the phenomenon. This then is “a” perception and “an” interpretation of the epistemic nature of teachers’ practical knowledge, and not necessarily “the” perception and “the” interpretation.

3.1.2 Research strategy

The knowledge claim of this study (i.e., that teachers construct practical knowledge and that its epistemic nature may be studied from their views) is in accordance with assumptions embedded in “constructivist” paradigms and particularly social constructivism. According to this paradigm, individuals construct their knowledge within and in interaction with social contexts. They “seek understanding of the world in which they live and work; they develop subjective meanings of their experiences…these meanings are varied and multiple, leading the researcher to look for the complexity of views rather than narrowing meanings into a few categories or ideas; the goal of research, then, is to rely as much as possible on the participants’ views of the situation being studied” (Creswell, 2003, p. 8). As discussed in chapter one, practical knowledge is believed to be developed by teachers throughout their experiential, social, and professional lives. In other words, practical knowledge of teaching is not just imprinted on teachers, but is formed over time through interaction with various sources of knowledge (e.g., colleagues, social and cultural values, teacher training programs), thus, it has different layers of meanings. For example a piece of a practical rule or a principle of teaching may be rooted in a teacher’s social values, but it still benefits from professional and personal experiences in the work. In this way, the social value embedded in it is a deeper layer of a teacher’s practical rule that may filter in or filter out professional experiences at work. Therefore, even though the research is methodologically based on “pragmatic” principles (i.e., using a mixed approach method) in order to obtain full insight into the topic, I primarily espouse a qualitative approach with which to plumb the teachers’ thinking and knowledge about the epistemic nature of their practical knowledge.

From different strategies of qualitative research approach (Creswell, 2003), I mainly used the principles associated with methods (e.g., data collection technique, data analysis) and the assumptions (i.e., what kind of knowledge can be produced) corresponding to “phenomenography.” However, this
does not reflect a clear-cut and mechanical application of methods. Instead, there has been a different degree of “reflexivity” backed up by “reflectivity” in applying methods in different phases of the study. In other words, when needed, the methods (data collection tools and rules, data analysis model) were adjusted to meet the methodological demands of the study. However, such an adjustment was not a blind action; it was based on different “sources” of reflection. The research task and questions were the main sources of reflection for adjusting the knowledge claim assumptions. Knowledge claim assumptions were used to choose the right research approach and strategy. The research strategy and situational demands of the research were reflective sources for adjusting data collection and analysis (e.g., using e-mail and Internet connections for collecting data instead of personal interviews, when needed). However, I remain committed to phenomenographic rules, methods, and assumptions as a suitable strategy associated with a qualitative approach.

Phenomenography is an empirical research tradition that addresses individuals’ understanding, perceptions and conceptualizations of the world around them. “It is research which aims at description, analysis, and understanding of experiences; that is, research which is directed towards experiential description” (Marton, 1981, p. 180). In this type of research strategy, the research problem is studied from inside i.e., from the views of those who have experienced the problem. According to Marton (1981), in studying a research problem or phenomenon we may choose one of these two alternative perspectives:

In the first and by far the most commonly adopted perspective we orient ourselves towards the world and make statements about it. In the second perspective we orient ourselves towards people’s ideas about the world (or their experience of it) and we make statements about people's ideas about the world (or about their experience of it). Let us call the former a first order and the latter a second-order perspective (p. 178).

Phenomenographic research, however, is more than simply reporting different people’s conceptions and ideas about phenomena: it involves identifying the concepts and looking for their underlying meanings and the relationship between them. In this case, Marton (1981) has argued that “what we have in mind is certainly not merely a listing of one conception after another. Some aspects are certainly more basic than others and different (and more or less fundamental) layers of the perceived world can be revealed” (p. 190). Marton (1994) also says that the different ways of experiencing different phenomena or concepts call for different capabilities to deal with them. Some ways of dealing with phenomena or concepts are more productive than others. Thus, the conceptions, or ways of experiencing, and their corresponding descriptive
categories not only can be related, but also be hierarchically arranged. The ordered and related set of categories of description is called the “outcome space” of the concept being studied (Orgill, 2008).

Even though phenomenography is considered to share with “phenomenology” in that both have something to say about “experience,” they differ in their perspectives and assumptions in studying a phenomenon. “From a strictly phenomenological point of view, the distinction between the first- and second-order perspectives is simply not feasible. According to this line of thought we only have access to the world through experience. This implies that we cannot separate that which is experienced from the experience per se” (Marton, 1981, p. 180). Moreover, as Marton (1994) argued, phenomenology is a philosophical method wherein a philosopher reflects on a specific phenomenon in which one’s way of experiencing the world is taken-for-granted, whereas phenomenography is an empirical research method wherein the researcher studies the participants’ reflections on or perceptions of a given experience or phenomenon.

Figure 3.1 Relationship between the knowledge claims and methodology of the study.

To return to the epistemic nature of teachers’ practical knowledge, phenomenography as a qualitative research was considered as an appropriate strategy to meet with the basic methodological demands of the present study. Practical knowledge is primarily an experiential form of knowledge that teachers have developed through their professional experiences; thus one of the beneficial ways to understanding its different aspects, including its epistemic nature, would be to examine it from the teachers’ perspective, i.e., from the second-order perspective and from the inside. Figure 3.1 indicates the
consistency between the knowledge claims and the methodological preferences of the study.

Along with committing to phenomenographic methods and assumptions, as my main strategy, I did some quantitative investigation of the qualitative findings in order to obtain more insight into the topic. In fact, with qualitative data analysis, I found that there are some patterns in data. In order to study these patterns a quantitative examination was done on the relevant findings. This kind of research is called a “concurrent nested mixed approach.” This approach “has a predominate method that guides the project. Given less priority, the method (quantitative or qualitative) is embedded or nested within the predominant method (quantitative or qualitative)” (Creswell, 2003, p. 218). As mentioned, the predominant approach of this research was qualitative, with phenomenography as its main strategy, and the quantitative method was nested within its data analysis phase.

3.2 Methods

As explained above, the research approach was a type of concurrent nested mixed approach in which phenomenographic strategy— which is one of the important strategies in qualitative approach— dominated but some quantitative examination was done during the data analysis. Accordingly, sampling (a selection of participants), data collection tools, and the major portion of the data analysis were done based on qualitative demands. The rules and assumptions of the phenomenographic strategy were of special interest in this way.

3.2.1 Participants

The source of data and information was supposed to be teachers who have had some years of teaching experience according to the knowledge claim assumptions of this study. Because one of the most important sources of teachers’ practical knowledge is their professional experiences, I decided to select the participants who had been teaching at least four years. This type of selection is called “purposive sampling” in that the participants are selected on the basis of some topics of interest or other similar criteria. “Purposive sampling techniques have also been referred to as nonprobability sampling or purposeful sampling or ‘qualitative sampling’…. [These techniques] involved selecting certain units or cases based on specific purpose rather than randomly” (Plano Clark, Creswell, & Nebraska, 2007, p. 203).
Based on this specific qualification (having at least four years teaching experience), I looked for experienced teachers in the comprehensive schools of the Helsinki metropolitan area. In order to find them, I provided a descriptive summary of the research plan and its major task. The summary was submitted by e-mail to the schools’ principals to be delivered to the teachers. The aim was to find the intended cases on a voluntary base. Some ten teachers indicated their decisions to participate. The teachers were distributed among three different schools. The next step was to meet the teachers in person in order to discuss the duration and conditions of the study, and the terms of their cooperation. At this stage six class teachers (i.e., teachers who are teaching several subject matters in an elementary grade) from two different schools decided to continue their participation in the research. Table 3.1 shows the general background of the participants:

Table 3.1 The background of the participating teachers in the study.

<table>
<thead>
<tr>
<th>Participants</th>
<th>Teaching experience (year)</th>
<th>Grade</th>
<th>Gender</th>
<th>Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher 1</td>
<td>4</td>
<td>4 and 5</td>
<td>Female</td>
<td>M.A. (Education)</td>
</tr>
<tr>
<td>Teacher 2</td>
<td>4</td>
<td>4</td>
<td>Male</td>
<td>M.A. (Education)</td>
</tr>
<tr>
<td>Teacher 3</td>
<td>9</td>
<td>3</td>
<td>Male</td>
<td>M.A. (Education)</td>
</tr>
<tr>
<td>Teacher 4</td>
<td>10</td>
<td>5</td>
<td>Female</td>
<td>M.A. (Education)</td>
</tr>
<tr>
<td>Teacher 5</td>
<td>15</td>
<td>3 and 5</td>
<td>Female</td>
<td>M.A. (Education)</td>
</tr>
<tr>
<td>Teacher 6</td>
<td>17</td>
<td>4</td>
<td>Female</td>
<td>B.A (Education)</td>
</tr>
</tbody>
</table>

3.2.2 Data collection

3.2.2.1 Focus of the data

Educational research has indicated that the content of teachers’ practical knowledge covers a range of issues in the teaching context (e.g., Elbaz, 1981; Kennedy, 2004; Meijer, 1999). In this study, I primarily focused on teachers’ practical knowledge of general pedagogy because studying all domains of teachers’ practical knowledge (as it is described in the literature) is too extended for a single researcher with general expertise in teaching. For example, in order to study the reasoning that lies behind teachers’ subject matter, and pedagogical content knowledge, researchers may need to have expertise in the specific subject matter they want to study. Thus, collecting data regard-
ing the reasoning behind teachers’ general pedagogical knowledge was the sole objective of the present research.

According to Borko and Putnam (1996), teachers’ general pedagogical knowledge and beliefs “include knowledge of various strategies and arrangements for effective classroom management, instructional strategies for conducting lessons and creating learning environments, and more fundamental knowledge and beliefs about learners, how they learn, and how that learning can be fostered by teaching” (p. 675). However, because the context of my study was supposed to be cultural-bound, a preliminary investigation was conducted in order to determine what specific elements were to be included in the teachers’ general pedagogical knowledge and beliefs in a Finnish context. Two teacher educators were interviewed. The results of these interviews indicated that several categories were emphasized and thus should be included in teachers’ general pedagogical knowledge and beliefs. Table 3.2 shows these categories. The categories and concepts in the Table were the prime target of the questions and items of the data collection instruments; they were also the starting point of data collection stage. However, these categories were not clear-cut structures for data collection; in many cases there were other pedagogical issues included in the general pedagogical knowledge, and discussed during data collection.

Table 3.2 The focus of data collection for teachers’ practical knowledge.

<table>
<thead>
<tr>
<th>Main domains of general pedagogical knowledge</th>
<th>Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching</td>
<td>Good teacher conception; nature and process of teaching; teaching dilemma; role of teacher, good teaching orientation, conception of self.</td>
</tr>
<tr>
<td>Learning</td>
<td>Good student conception; learning conception; challenging student’s conception; conception of good learning environment; students’ learning orientations; talented, normal, and poor students.</td>
</tr>
<tr>
<td>Instructional strategies</td>
<td>Good teaching strategies, rules of practice, routines, Constructive teaching strategies, group-work teaching method; teacher-student relationship; direct teaching strategies.</td>
</tr>
<tr>
<td>Classroom management</td>
<td>Disciplinary classroom conception; misbehaving students; academic freedom; disruption, firmness in rules.</td>
</tr>
</tbody>
</table>
3.2.2.2 Forms of data

Two distinct forms of teachers’ practical knowledge of general pedagogy were targeted in the present study: teachers’ overarching beliefs and teachers’ knowledge-in-use. In other words, I studied the reasoning behind teachers’ overarching beliefs, and their knowledge-in-use of general pedagogy. On the one hand, overarching beliefs were considered the most inclusive beliefs and values of teachers. Elbaz (1981) described this kind of practical knowledge as “image”. Kennedy (2004) refers to such inclusive beliefs as “standing beliefs which” teachers may have developed over a lifetime. Drawing on Grossman (1990), Borko and Putnam (1996) have pointed out that teachers’ overarching knowledge “serves as a conceptual map for instructional decision-making; it serves as the basis for judgments about classroom objectives, appropriate instructional strategies, and students’ assignments, textbooks, and curricular materials, and the evaluation of students’ learning” (p. 676).

On the other hand, knowledge-in-use referred to knowledge that teachers use at the actual time of teaching, thus, they could demonstrate it by doing (i.e., by teaching). This form of knowledge was connected to “interactive teaching” (Calderhead, 1996), wherein teachers were found to act in such a way that they could track the progress of a classroom’s tasks and the students’ learning in terms of those tasks. I could follow this form of practical knowledge through active observation of the teachers’ lessons. In teachers’ knowledge-in-action two distinct but interrelated courses of action were studied. One was “situational” knowledge in which teachers’ actions and reactions to novel encounters were examined. “Routines” were the other form of knowledge-in-action. During observation sessions, I found that teachers used frequently repeated actions in almost all lessons. I identified such actions as routines and developed an open-ended questionnaire for each teacher to use in data collection. These actions were like a “default pedagogical setting” for guiding their actions. Vásquez-Levy (1998) reported such a pedagogical setting as: “a sequence of actions stored within the teacher’s repertoire of routines that permit a teacher to perform his or her every day activities” (p. 537).

3.2.2.3 Data collection instruments

Given the research objective of this study, the goal of data collection was to enable description of the epistemic nature of teachers’ practical knowledge by gaining insight into their reasoning. Teachers’ reasoning was supposed to be embedded in their practical thinking. Thus the investigative tool used should enable the researcher to go deep enough into the teachers’ practical thinking to uncover their reasoning. The main tool for meeting this demand and col-
collecting data was interview. I tried to apply the following rules in conducting interviews with teachers: designing indirect questions, open questions, deep procedure.

Reasoning and justification were mostly sought on an indirect basis. In other words, I was interested in unconstrained reasoning as expressed in teachers’ thinking in order to avoid hindsight and desirability effects. For example, the use of technical terms in the interview was avoided as much as possible; e.g., such question “how do you think about classroom management?” is a technical term and may not elicit the teachers’ real thinking about classroom management. Nor was there any clear-cut structure in the way I conducted interviews. While sometimes I had a list of questions to be addressed, I was also prepared to follow any unexpected lines of reasoning that the participating teachers introduced. In addition to these two rules, I asked different interrelated courses of questions to deepen the data if the initial argument revealed nothing about the teachers’ reasoning or justification.

Depending on the forms of data, mentioned in section 3.2.2.2, two types of interview were used. One type was the “stimulated recall interview” (Calderhead, 1996). I used it to collect data related to teachers’ practical knowledge-in-use. While the main purpose of many researchers for using stimulated recall interview has been to recall “interactive” thinking of teachers while teaching (e.g., Meijer, 1999; Toom, 2006), in the present study the focus was primarily to relive a particular incident in order to disclose a teacher’s reasoning about the recalled incident. The general procedure in this kind of interview was to observe and audiotape the teachers’ lessons; then, usually one hour after the lessons I asked questions to determine the reasoning that the teachers had for supporting the significant pedagogical actions. In a stimulated recall interview, researchers (e.g., Kennedy, 2004; Meijer, 1999; Toom, 2006) too often ask “participants” to choose some incidents from the already-videotaped lessons and start a discussion about these incidents. Instead, in this study because the incidents had to be related to the main themes of teachers’ general pedagogical knowledge, I identified selected pedagogical incidents while observing the lessons, meanwhile recording the lessons on a portable solid state recorder (Marantz Professional PMD660). I was able to record the lessons in digital audio format and press a button in order to recall its specific points later. This function was labeled EDL (edit decision list) and helped me to designate specific points during lessons and track them instantly during playback. Before starting the interview, I reviewed the designated points and made notes and questions to use in the interview. Then, usually one hour after each observation, I interviewed the teacher about those specific incidents. The designated incidents were played back and, after the teacher had listened to each track, I asked relevant questions.
I also used a semi-structured interview for collecting data related both to the teachers’ overarching beliefs and their routines. The content and questions of these interviews were prepared before the interviews began. The main criterion to include questions in the interviews was their relevance to the teachers’ general pedagogical knowledge. In other words, I included questions related to teachers’ practical knowledge about classroom management, instructional strategies, and learning and teaching concepts. The initial list of questions and the concepts in the semi-structured interview for collecting data of overarching beliefs were common for all participants. The case of routines however, was different; while observing the sessions in the stimulated recall interviews, I provided a list of routines for each teacher and organized them into an open-ended interview. The data collected by these two types of interview were the main source of knowledge production in the research.

3.2.2.4 The procedure of data collection

At the beginning of the study, I did the semi-structured interview in order to understand teachers’ overarching beliefs concerning general pedagogy. In the second step, based on a mutual agreement, teachers were given an observation schedule with each teacher given eight sessions. I observed each classroom for approximately eight hours. The observations were spread out over the academic year, and over different subjects in such a way that I could observe as much detail and as many pedagogical actions as possible. The first four sessions were devoted to becoming acquainted with the context and the culture of the classroom. I audio-taped and reviewed these sessions to obtain more insight into the teachers’ ways of teaching and reasoning. However, there was no interview corresponding to these initial observations. Observations helped me establish a relationship and a baseline about each teacher’s practices (Vásquez-Levy, 1998). For the next hours of observation, notes were made about the teacher’s pedagogical actions while teaching; moreover, all conversations between teacher and students were audio-taped. As mentioned, one hour after observation I interviewed each teacher on the basis an observation unit. The observation units were considered particular and significant pieces of practice or knowledge that teachers insisted while teaching. The units had to be related to general pedagogical knowledge. The last step in the data collection was to conduct another semi-structured interview about the teachers’ routines. It should be noted that each interview was transcribed verbatim during the same day or at most one day later; the necessary notes and reflections were made during transcription; then the material was orga-
nized according to date of the interview, the teacher’s name and the interview type into a designated folder for further actions in data analysis.

3.2.3 Data analysis

3.2.3.1 Data analysis model

The main goal of the data analysis was to describe the structure and nature of teachers’ reasoning based on data provided in the semi-structured and simulated recall interviews. Relying on Toulmin’s (2003) model of argument and Fenstermacher and Richardson’s (1993) empirical study, an “abductive” procedure for categorizing data was designed to describe the structure (i.e., elements and the expression forms) of teachers’ reasoning. Toulmin’s model is a popular form of argument. This model is named after Stephen Toulmin, who in *The Uses of Argument* proposed that every good argument has six parts. The first three parts are essential to all arguments. These parts are claim, data, and warrant. Arguments may also contain one or more of three additional elements: backing, rebuttal, and qualifier (Toulmin, 2003, pp. 89–97).

A claim is the main point of the argument. A claim can be mapped up by asking, “What does one want to prove?” The response is the claim. The claim organizes the entire argument, and everything else in the argument is related to it. Data supply the evidence or other kinds of justification, such as reasoning and factual information about the claim, which makes it something others believe in it. Data can be identified by posing questions such as “What information does one need to convince his/her audience?” “Warrants are the assumptions, general principles, the conventions of specific disciplines, widely held values, commonly accepted beliefs, and appeals to human motives that are an important part of any argument. Warrants originate with the arguer, but also exist in the minds of the audience. They can be shared by the arguer and the audience or they can be in conflict” (Wood, 2007, p. 1). The most important function of the warrant is to relate the data to the claim. Warrant can be interpreted by asking “Why does an arguer believe that his/her data are relevant for the claim?” Backing is more abstract evidence or additional information provided to “back up” a warrant whenever there is a strong possibility that your audience will reject it. A rebuttal establishes what is wrong, invalid, or unacceptable about an argument and may also present a counterargument (ibid., p. 2). A qualifier refers to the extent to which an argument is possible and indicates its strength. I wanted to determine to what degree the six parts of Toulmin’s model could be identified in the teachers’
arguments. In addition, Fenstermacher and Richardson’s study (1993) was adopted in order to gain insight into the form of premises in each teacher’s argument. In their study, they found that teachers’ practical arguments can be fully described by four types of premises: value, stipulative, empirical, and situational premises. These premises were already discussed in chapter 2. In this case, the main goal was to identify the types of “claims” or “data” in terms of the four premises mentioned. In other words, the form of the premises could be mainly identified from two elements of Toulmin’s model: claim and data; the other elements were either implicit in or peripheral to the arguments. Based on these two models, the categorization of data was done in two distinct stages: general categorization, and content-specific categorization.

### 3.2.3.2 General categorization

The goal of this stage of the data analysis was to develop a “general” and not content account of the data. To accomplish this goal, I identified the elements of Toulmin’s (2003) model, the form of premises in Fenstermacher and Richardson’s (1993) work; and also any new categories in terms of elements and forms of practical arguments, and thus built up a basic categorization and conceptual framework for further steps. Before starting categorization, I needed to decide about coding issues.

**Coding method:** The method of coding at this stage, i.e., the general categorization was “abductive” in that a list of ideas and meanings based on Toulmin’s (2003) model and Fenstermacher and Richardson’s (1993) empirical study was provided to develop categories. Two important elements of coding at this phase and before starting the general categorization were to decide on the “units” and “types” of coding.

**Coding units:** In the case of the coding units, I was mainly concerned to know what particular piece of text contains a piece of teachers’ arguments and can be considered as a unit of analysis. In making a decision about this issue, I considered each unit of analysis to be units of meaning that cohered around an “argument” including its elements as described in Toulmin’s Model. A decisive rule for deciding about the “starting” and “ending” points of an argument unit was the element of “claim.” The entire explanation and argument (which could contain one or more of the other elements) pointed at a particular “claim” was considered to be an “inclusive” unit of analysis. For example, a teacher’s entire argument and explanation for justifying her claim that “a good teacher must be strict and disciplinary” was a unit of argument. Each unit, however, was multifaceted, i.e., inside each inclusive unit of argument there were other units. For example, a unit of argument could include
codes that represented claim, data, and warrant; in turn, claim and data could reflect the form of the premises as another facet of the argument. Each of the other units inside the inclusive unit of the argument was called a “single” unit of analysis. Such coding units are illustrated in the case below:

A good teacher must be strict [claim] because if you give students too much freedom, then students cannot work and thus the learning tasks cannot be done very well... [Data] (T1)

This particular text is considered to be an inclusive unit of analysis, i.e., a unit of argument. It also contains other single units such as claim and data. From the data, I can also identify the “form of the premise,” which is an empirical premise: “If a teacher gives too much freedom to the students, then students cannot work and learning tasks cannot be done very well.” This indicated that each unit of argument is multifaceted and can be interpreted from different angles. Later in quantitative analysis, this multifaceted unit of analysis helped me to examine and study the patterns within teachers’ arguments. Thus, I had two distinct units of analysis at this stage: inclusive or multifaceted units which assigned to a piece of text related to the entire argument revolving a “claim,” and single unit of analysis, which assigned to a piece of text within an inclusive code. These single codes were corresponded to each character or elements of teachers’ argument.

Types of coding: The coding unit was to indicate the starting and ending points of a piece of text as single or inclusive codes. The type of coding was related to the “ways” of interpreting a particular text as a code. Depending on the nature of the elements in a teacher’s argument and the information in each text, I had two types of interpretative codes: inferential and descriptive (Miles & Huberman, 1994 pp. 50–56). Inferential coding was used to assign codes to the implicit elements and characters embedded in the teachers’ arguments. Descriptive coding, however, was used to assign codes to the explicit elements. In Toulmin’s (2003) model, for example the warrant is frequently an implicit part, whereas the other elements are explicit. In the text below inferential and descriptive codes are illustrated:

I do not ask questions some students in the front of their classmates (claim) because they cannot fully express their ideas (data) (T3).

In this example, claim and data are explicit; thus, they are descriptive codes. However, there is an implicit element that links the claim to the data: the warrant. The warrant here is an implicit value or principle that shows how the

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3 T1 stands for Teacher 1 as it is described in Table 3.1; this rule applies to all participants’ quotations used throughout this monograph.
data are relevant to the claim. In this particular example, the warrant may be called “care”. Thus, in this example I infer a warrant, i.e., care that is implicit in the argument. With the coding method, i.e., the coding types and unit as mentioned above, and using Toulmin’s model, I began the general categorization. Figure 3.2 shows how a unit of argument was analyzed based on Toulmin’s model.

![Figure 3.2](image)

**Figure 3.2** The model of data analysis for the general categorization.

As illustrated in Figure 3.2, in practice each particular text was assigned to a unit of argument (inclusive code), and within each inclusive code a different part of the text was assigned for different elements of the argument (e.g., claim, data, warrant). In addition, in this stage of the elements of teachers’ arguments, as mentioned, the forms of the premises were tracked based on Fenstermacher and Richardson’s study. This general categorization was also enriched and extended by writing down reflections during analysis. I should also point out that all transcripts were coded with the Atlas/ti program (Muhr, 1994). This program helped organize and manage the data for further steps and actions. Furthermore, at this stage, i.e., the general categorization, I only examined the part of the data provided by semi-structured and stimulated recall interviews related to two of the participating teachers. The criterion for selecting these teachers was their experience. Two teachers with the most and least teaching experience were selected in order to cover as many differences in the teachers’ arguments as possible. The outcome of this phase was determining that:

- In most parts of the transcripts (although not all) the inclusive codes representing a unit of argument including its elements could be identi-
fied in the teachers’ arguments; the length of an inclusive unit ranged from one short paragraph to a few paragraphs depending on the number of embedded elements, and the quality of explication.

- Three basic elements (claim, data, and warrant) of Toulmin’s model were found in all inclusive codes. Backing and rebuttal were also significantly found in many of the units of argument, but not in all; and the qualifier was not significantly tracked in the data.
- In addition to these five elements, based on my reflections while analyzing, a new element was identified in all inclusive units of analysis. I called this element “personal belief systems.”
- Along with the elements embedded in the teachers’ arguments, it was found that each particular piece of the teachers’ arguments was expressed in two forms: “cognitive” and “affective.” The cognitive form of expression was in accordance with Fenstermacher and Richardson’s (1993) study, including four premises. The affective form was new to the data and to the structure of the teachers’ arguments (see chapter four).

3.2.3.3 Content-specific categorization

The general categories were developed primarily based on the models mentioned. In other words, the general categorization provided a system of categories according to argumentative models: these models were not “content specific,” but pointed to general domains of teachers’ arguments in which categories could be developed. However, the main purpose of this stage was to develop a new system of categorization based on the previous categories but with a description of their content. It can be said that while the main purpose of the general categorization was to describe the “structure” of teachers’ arguments, the goal of content-specific categorization was to describe the “nature” of the teachers’ reasoning. From now on, “teachers’ practical arguments” refer to an aspect of a teacher’s argument that has a specific structure, including elements found in the initial categorization. However, “teachers’ reasoning” will be used to indicate the teachers’ justification, i.e., the data and warrants proposed to support their claims.

The development of a new system of categories began with an intensive reading of the same data used in the general categorization phase (the materials related to two teachers mentioned earlier.). Relying on the “grounded method” of analysis, the process of developing the new system of categorization was based on an “inductive” procedure including the following two steps:

In the first step, the main ideas and meanings embedded in all units of analysis corresponding to the general categories were displayed in a two-
The methodological logic and practice of the research

dimensional matrix with the columns headed by two teachers’ main ideas embedded in units of analysis and with rows consisting of categories developed in the first phase (i.e., elements and forms of teachers’ arguments). Table 3.3 illustrates how a teacher’s main idea was elicited from the following argument:

I always encourage students to ask a sensible question, and generally what I do in any case is that I have my lecture first, and then I say if there are any questions, let wait until the “Questions Park”; this is a general procedure that I follow and I let it come at end of the situation so that you can ask your question freely and frequently; this is what I call Question Park. For example, like today, if the students had certain ideas and concepts that they wanted to bring up about things they do not understand, I allow them to say these things again, but generally the rule is that it is left to the end of the lesson, because I found that a lot of time it wastes a little bit of time if they have to ask questions and I did not actually get into the specific section in the work and thus we may not accomplish the tasks on time. Because very often there is still work in progress and I go through all the information and then students ask a question at the beginning of the lesson about content that we will discuss at the end of the lesson. And that is why I prefer them to ask questions at the end of the lesson, because we might just answer the questions in the course of the lesson (T3SRI1, 9 years experience).

Table 3.3 An example of the reduction of the main ideas from a teacher’s argument in data analysis.

<table>
<thead>
<tr>
<th>General categories</th>
<th>Main ideas embedded in units of analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Claim</td>
<td>Teacher believes that students should not be allowed to ask questions until the end of a lesson (T3SRI1).</td>
</tr>
<tr>
<td>Data</td>
<td>Teacher did not allow the students to ask question during the course of teaching in order to finish lesson on time; questions during the course of teaching are waste of the time. (T3SRI1)</td>
</tr>
<tr>
<td>Warrant</td>
<td>Teacher supposed that his action had positive results for himself in that the action regulates his lesson. The action is effective in managing class (T3SRI1).</td>
</tr>
<tr>
<td>Backing</td>
<td>There was no backing for this argument (T1SRI1).</td>
</tr>
<tr>
<td>Rebuttal</td>
<td>Teacher sometimes let the students ask questions, but not always (T3SRI1).</td>
</tr>
<tr>
<td>Personal belief system</td>
<td>Teacher does not see the complexity of the classroom situation, and consider himself to be the source of decision making (T1SRI1).</td>
</tr>
<tr>
<td>Cognitive Form</td>
<td>Teacher asserted his argument based his own theory, i.e., “Question</td>
</tr>
</tbody>
</table>

---

4 T3SRI1 is a label for this unit of analysis and it stands for teacher 3, stimulated recall interview coding unit 1.
In this example, the teacher’s argument reflects five out of six elements of a practical argument. It was also expressed in cognitive and affective languages. Thus, as illustrated in the Table 3.3, each cell indicates the teachers’ main ideas about one category. However, in the real matrix each cell contained the main ideas of all units of analysis related to two teachers mentioned. The main ideas were considered as the teachers’ basic explanations for developing categories. The second step in the content-specific categorization began, with Consideration of these main ideas.

Table 3.4 Reduction of main ideas to categories in the data analysis.

<table>
<thead>
<tr>
<th>Main ideas (related to the data)</th>
<th>Lower category</th>
<th>Upper category</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher did not allow students to ask question during the teaching so that the lesson would be finished on time, questions during the course of teaching are a waste of the time (T3SR11); teacher did not allow students to talk to each other so that they can concentrate on lesson (T4SR11); teacher asked a student to go the corner of the classroom to allow other students to work (T1SR11).</td>
<td>Fear about fulfillment of learning tasks (LC2(^5))</td>
<td>Preventing pedagogy (UC2)</td>
<td>Contextual ground (professional) (TH1)</td>
</tr>
</tbody>
</table>

In the second step, the main ideas extracted from the previous step were reviewed and examined to see how they might be clustered into slightly more abstract categories. I looked for the common intentions and meanings of the main ideas in order to group them as a category. In this way, it was possible to attribute main ideas with common meanings and intentions to a particular category. These categories are called “lower (sub) categories” in the content-specific categorization. I then clustered them into a small number of “upper categories” based on main ideas and descriptions corresponding to the lower categories. In so doing, each group of related (in terms of meaning) lower categories could be attributed to a particular upper category. Upper categories were then used to generate the highest level of meaning in the content-

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\(^5\) LC2 is an abbreviation for Lower category two; UC2 for upper category 2; and TH1 theme one.
specific categorization. I called each particular unit of these highest loading meanings a “theme” (see Table 3.4).

The outcome of content-specific categorization was a list of themes, as well as upper and lower categories. A clear and short description and definition of the categories and themes was provided based on the main ideas corresponding to lower categories and thus their associated upper categories and themes. This list of categories and its associated descriptions and definitions were considered as the “preliminary” categorization and conceptualization. To see how this conceptualization makes sense, and to what degree it is saturated, I needed to analyze the material of other participants. However, the new data analysis phase for the other four teachers was conducted after a seven-month interval in order to check the credibility of the preliminary categorization from the participants’ point of view (see chapter seven for more details).

Therefore, after getting feedback from the two teachers about the system of categories developed in the first round, I began to analyze and categorize the data related to the other participants. In doing so, I conducted the same procedure as in the first round of data analysis. In other words, I first did the general and then the content-specific categorization. The result of this stage was also a list of subcategories, upper categories, and themes. The preliminary categorization, including the list of themes, lower, and upper categories that were developed from the materials related to the two first teachers was compared and examined in terms of the categorization from other four teachers. In other words, I wanted to know to what degree the list of categories from the two teachers was consistent with the new categories in the materials related to the other four teachers. The result of this procedure was a system of categories that was both general domain and content specific and could be used for describing the structure of teachers’ practical arguments and the nature of their reasoning. The system of categorization and its corresponding categories in the theoretical models is illustrated in the Table 3.5.
Table 3.5 Categories of teachers’ practical arguments in comparison with theoretical background.

<table>
<thead>
<tr>
<th>Toulmin’s model of argument</th>
<th>(A: Elements of practical argument)</th>
<th>Categories of elements of teachers’ practical argument</th>
</tr>
</thead>
<tbody>
<tr>
<td>Claim</td>
<td>Practical knowledge claim</td>
<td>Classroom management; teaching strategies, learning and teaching concepts</td>
</tr>
<tr>
<td>Data</td>
<td>Contextual grounds</td>
<td>Professional context, personal context, situational context</td>
</tr>
<tr>
<td>Warrant</td>
<td>Epistemic conditions of practice</td>
<td>Morality; efficiency of action</td>
</tr>
<tr>
<td>Backing</td>
<td>Backing</td>
<td>Subjective backing; objective backing</td>
</tr>
<tr>
<td>Rebuttal</td>
<td>“But-pedagogy”</td>
<td>Incorporated “but-pedagogy”; simple “but-pedagogy”</td>
</tr>
<tr>
<td>Qualifier</td>
<td>No corresponding category</td>
<td></td>
</tr>
<tr>
<td>No category</td>
<td>Personal pedagogical belief system</td>
<td>Construct knowledge, graduate learning, flexible pedagogy, integrated pedagogy, and comprehensive pedagogy</td>
</tr>
<tr>
<td>Fenstermacher &amp; Richardson’s form of premises</td>
<td>(B: Forms of premises)</td>
<td>(B: Forms of premises)</td>
</tr>
<tr>
<td>Value, stipulative, empirical and situational</td>
<td>Cognitive and affective forms of expression</td>
<td>Value, stipulative, empirical and situational premises; hopes, fears, and commitment</td>
</tr>
</tbody>
</table>

It should be pointed out that during the first and second rounds of the analysis, I systematically wrote my reflection on different main ideas and their connection to lower (sub) categories and used these reflections as a basis for generating upper categories and themes. In addition, as can be seen in the example above, all the units of analysis, the main ideas in the lower and upper categories, and the themes took a particular label. This action was done in order to further organization and actions.

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6 This concept will be explained in chapter 4.
3.3 Description and report of categories

Two main sources were used in order to describe the categories developed in the present study: teachers’ main ideas and description corresponding to each category, and the researcher’s reflection corresponding to each category. As mentioned; during data analysis the main ideas embedded in each unit of analysis were displayed in a matrix. The main ideas then were clustered into categories with different levels of inclusion. The main ideas and categories were linked to each other by the same label. In this case, I used the main ideas to describe and report corresponding categories. In addition, if the main ideas did not yield enough information to explain and describe a category, then the original text and explanation given by the teachers corresponding to the main ideas were used in order to deepen the description. The main ideas were primarily used to explain the immediate or lower (sub) categories developed from the main ideas during the inductive data analysis.

The other source of description data was my own reflection. During all phases of data analysis, specifically when data were transformed from Toulmin’s model into content-specific categories, there was systematic reflection (different reflections aimed at different purposes) on emergent categories. Four types of reflection were carried out: memos, methodological reflection, reflection on categories, and theoretical reflection. Memos were done in order to organize the data analysis process; they were mainly conceded with practical issues of data analysis and had nothing about the content of the data. Methodological reflection was aimed at the ways data analysis was done at the different stages. Reflection on categories was connected to the emergent categories (lower, upper, and themes). For each category in all three levels there was a reflection folder; here I wrote down the reflective notes related to each category whenever a new point arose during data analysis. In the end, each category had a reflection folder. Theoretical reflection was primarily aimed at the relationship between different categories; thus the main goals were to find and describe the relationship between different categories in order to develop a conceptual framework in the data.

Of these four types of reflective notes, reflections on categories and theoretical reflections were mainly used to describe the categories while reporting the data. While the main source for describing lower (sub) categories was the main ideas and explanation provided by teachers, the source of description for upper categories and themes my own reflection as mentioned. However, this was not a hard-and-fats rule: sometimes the main ideas were used for describing and deepening themes and upper categories and vice versa. The descriptions and final reports of the categories are presented in chapters four and five in two different ways. In chapter four, the elements and the forms of
expression of the practical arguments are analyzed in terms of the “structure” of teachers’ practical arguments, i.e., how they are linked to each other and thus constitute a coherent conception. In chapter five, contextual grounds and epistemic conditions of practice are more deeply analyzed in order to gain insight into the epistemic “nature” of teachers’ practical knowledge, since these two elements more directly deal with the “reasoning” that lies behind teachers’ actions.

### 3.4 Quantitative phase of the research

Once the qualitative data analysis phase was finished, I conducted the quantitative examination of data. In qualitative data analysis, I found that there are some associations and patterns within the structure of teachers’ practical arguments such that some elements of practical arguments are related to each other and thus make a new network of meaning and understanding. In order to get insight into these patterns, I imported the qualitative data into SPSS and studied the relationships using appropriate statistical tests. The design and procedure of the quantitative study will be presented in details in chapter 6.
4 Findings: the structure of teachers’ reasoning

The central research task was to study the epistemic nature of teachers’ practical knowledge by obtaining insight into their reasoning. One of the main research questions was to address the structure of teachers’ reasoning in order to fulfill this research task. This chapter deals with the examination of the structure of teachers’ reasoning by addressing the following questions:

1. What are the elements of teachers’ reasoning that lie behind their practical knowledge?
2. How (in what forms) do teachers express their reasoning?

4.1 The idea of the structure of teachers’ reasoning

When the present study began, the main objective was to gain insight into the nature of teachers’ reasoning (e.g., evidence and justifications) or to determine what teacher use to support their practical knowledge. The structure of their reasoning was not the goal. However, during the data collection and specifically the data analysis, I found that the teachers’ reasoning had different elements, and forms of expression. More importantly, a pattern emerged between the different elements of the teachers’ reasoning. Thus, I decided to study the structure of teachers’ reasoning based on its elements and the pattern its relationships as a means for understanding more fully the epistemic nature of teachers’ practical knowledge.

I studied the structure of teachers’ reasoning from two aspects: the elements of reasoning and the forms of expression. The elements of teachers’ reasoning were found to be the illuminating imports that the teachers explicitly or implicitly refer to when they argued about their practical knowledge. The function of each element was found to be particular, but was integrated to the other elements as a “unit” which I call a “practical argument unit.” The form of expression represents the other aspect of the structure of teachers’ reasoning in the present study. I found that the teachers conveyed their reasoning in the “cognitive” and “affective” forms; wherein each of these forms provides particular insight into the nature of teachers’ reasoning. The structure of teachers’ reasoning, including the two mentioned aspects, is important in that it can be a basis for further investigation into teachers’ thinking.
4.2 The elements of teachers’ reasoning

The data revealed that the teachers frequently used “practical arguments” in order to support their practice. The main spirit and function of practical arguments for the teachers was the fact that they had to “do” something based on a “practical judgment” in order to cope with the unpredictable demands in the teaching context. The results of the study showed that each practical argument unit was a coherent discussion, including the following illuminating elements: “practical knowledge claim,” “grounds,” “epistemic conditions of practice,” “but-pedagogy,” “personal pedagogical belief system” and “backing”. Each of these elements had particular function in the argument and illuminated the different aspects of the teachers’ practical arguments.

4.2.1 Practical knowledge claim

The practical knowledge claim was the “cognitive statements” that the teachers asserted when they were simply asked “What do you think about this?” and “What would you like to do in this situation?” From the practical argument perspective, “knowledge claim” was the main and basic element that organized the entire argument; other elements somehow and in different ways were related to it. In fact, it was a concluding judgment that sometimes followed a series of reasons or premises that teachers represented in their arguments. Sometimes, the practical knowledge claim was presented at the beginning of the argument, and other premises and explanations followed to justify it. In most cases, the knowledge claim was an explicit cognition that could be identified in a direct way; however, it was also the case that the knowledge claim was tacit and could be interpreted in light of the entire argument. In any sense, in each unit of the argument the teachers offered a “decisional cognitive point” that was a basis for action or the intention to act in a particular situation or in the general context of their job on many occasions. In the following example, the teacher has made an explicit knowledge claim as a conclusion to her argument (i.e., the claim is placed at the end of the argument):

Especially in the English class, there are some occasions when good students can talk to and help some students who know less. It is a peer who is at the same level with him or her, and then you can talk and solve some problems without always having teachers involved. And especially in the English class, there are the occasions when you can really use English. I mean if in the class we act in a way that one student read loudly and others listen, the time when the others are listening is the way they are speaking with themselves. So I use small groups every now and
then just because on that occasion they can really talk English (T1, 4 years experience).

From the perspective of the present study, the knowledge claim could represent teachers’ practical knowledge by which the teachers guided their actions. The content of the teachers’ knowledge claims were related to the different pedagogical issues targeted by the present research (i.e., general pedagogy) such as the claim about instructional strategies, classroom management, and the concepts of teaching and learning. Table 4.1 illustrates the numbers of knowledge claim units in the different categories of general pedagogy examined in the present study.

**Table 4.1** Frequency distribution of knowledge claim based on three general pedagogical categories.

<table>
<thead>
<tr>
<th>General pedagogy</th>
<th>frequency</th>
<th>percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classroom management</td>
<td>44</td>
<td>19.1</td>
</tr>
<tr>
<td>Instructional strategy</td>
<td>109</td>
<td>47.4</td>
</tr>
<tr>
<td>Teaching and learning concepts</td>
<td>77</td>
<td>33.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>230</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

As Table 4.1 shows the total units of analysis in the study were 230, of which Instructional Strategy, with 47.4 percent was the most frequent topic about which the teachers offered practical arguments. Regardless of what type of general pedagogy the teachers discussed, an important issue was the degree of its inclusion. Educational location (i.e., the context in which a claim is presented) and educational objects (the topic about which the claim is offered, e.g., a particular student or a particular strategy) were the two main determining factors in the degree of knowledge claim inclusion. There were many cases by which the teachers talked about a particular educational object in a specific educational location, so the degree of inclusion was related to only corresponded object and location:

You know, students will be loud when they are coming back from a break, they have been out, and they are going to be aloud and active. And if I tried to yell over them, nothing happens. I cannot yell and yell and yell; I cannot do that. So that is why I count 1, 2, 3, 4, and 5 and hereby they know the rule and become ready to begin the lesson (T6, 17 years experience).

The particular pedagogical location, in this case, is the time when “the students are coming back from a break after they have been out.” Also, the
pedagogical object here is “a concern about how to deal with loud students when they are coming back from a break.” Thus, in this particular situation, the teacher had a specific rule of practice: she tried to count from 1 to 5 in order to signal to the students that they should now get quiet and ready for the lesson. There was another level of inclusion in the teachers’ arguments whereby their knowledge claims could include a particular educational object, albeit in several educational locations:

(Q: How do you deal with different students in the classroom? I try to keep the classroom very active so that every student with a different learning capacity may have the opportunity to learn. For example, I create work groups and give them tasks in many subjects and lessons. So they can talk with each other and can ask questions and help each other. I give them some problems to solve and I give them some clues for finding solutions; otherwise they do not do anything (T5, 15 years experience).

In this case, the teacher has suggested a more inclusive pedagogy whereby she deals with a particular object (i.e., how to deal with difference in the class) in several locations (i.e., in different subjects). The basic principle for dealing with this case is “to keep the classroom active.” Moreover, this principle of practice may include several rules of practice as it was mentioned above in the earlier case. For example, in this case, to keep the classroom active the teacher used the work-group strategy with which students “can ask questions, talk to each other, and solve the problems.”

Perhaps the most inclusive type of teachers’ knowledge claim was the occasions when their claim could include one or more objects, but in almost all educational locations in the teaching context. In most cases, such knowledge claim seemed to include deeply established beliefs and values regarding general theories about different educational objects (e.g., theories about the students’ learning orientations or about teachers’ roles and obligations). In the case below a teacher with four years of experience showed a large picture and image of the role of the teacher, and this picture may be the basis for many of the rules and principles of practice in the classroom. As mentioned this image can cover several pedagogical locations and pedagogical topics:

(Q: What does it mean to be a good teacher?) I think first of all you have to be quite strict.... I mean strict that the students need to understand that you are the one who tells them how to behave, and they have to trust you... (T1, 4 years experience)

It may be that there is a hierarchical consistency within these three types of knowledge claims wherein the least inclusive claims are built up in a manner consistent with the second most inclusive claims; it could also be that the
Findings: the structure of teachers’ reasoning

teachers’ most inclusive and standing beliefs include and consist of the two former cases.

4.2.2 Grounds

The second basic element of the teachers’ practical arguments was the grounds on which they made knowledge claims. In the real data, while I figured out the knowledge claims by asking the question “What did teachers want to prove,” I identified the grounds by raising the question “What evidence, reasons and personal views, and factual information did the teachers provide to support their knowledge claims?” In many cases, the teachers used words such as “because”, “since”, “as”, and like that when they wanted to support their claims. One important and critical point about the grounds was that in most cases, the teachers used “reasons” as the grounds to support their knowledge claims. As mentioned earlier in this chapter, the structure of the teachers’ reasoning could best be conceptualized in the form of practical arguments that has its point in “acting” in the practical contexts such as teaching. In a real sense, the teachers’ reasons were rhetorical explanations that they offered to support their knowledge claims and any associated actions. In other words, the cognitive character of justifications for the teachers’ practical knowledge (i.e., knowledge claim) was not primarily in the form of concrete and factual evidence; rather it was based on the teachers’ personal professional understating of teachers embedded in different contexts of their work that turned out to be in the form of units of meanings that I call the practical argument. Thus, the essence of the grounds in the teachers’ practical arguments was a reason-giving approach: In the case above, the teacher offered a knowledge claim about a good teacher. Here is her reasoning (Contextual ground) for why she believed so:

I think first of all you have to be quite strict. I mean strict that the students need to understand that you are the one who tells them how to behave, and they have to trust you, because if you give them too much freedom, they actually, I have experienced that they cannot work very well, you have to, you anyway have to give them rules: what we are going to do and somehow guide them in their work. I don’t agree with the fact that you could just give the students a topic and tell them ok, work with these; they cannot, they don’t know how do that. So you have to set the guidelines…

Moreover, it was found that when the teachers reasoned to support their knowledge claims, they embedded their reasoning in different contextual entities. In other words, the grounds for the knowledge claims were related to
the idiosyncratic character of the teaching context wherein the fundamental premises may not be used in order to justify teaching practice. The data showed that the contextual grounds contain a broader meaning (for example in comparison with situational grounds), including three main categories (refer to chapter 5 for more details and examples of three categories):

- The personal context in which a teacher has a particular understanding that was supposed to be different from the understanding of other people and other teachers.
- The job of teaching as a particular context that needs the particular courses of pedagogical practice. There were two subcategories: “preventing pedagogy” and “initiative pedagogy.”
- The classroom situations as a particular context in which each educational event between teachers and students in different locations was considered to be particular in the sense of how it was dealt. This category also had two influential subcategories in the classroom situations: “hard intervention” and “soft intervention.”

Thus, the contextual grounds, including the three meanings mentioned, were the main epistemic forms of justifications in the teachers’ practical arguments. The teachers often explicitly offered such contextual grounds so that they could be identified very easily and right away. They often used a familiar structure such as “I do or believe so because…”

4.2.3 Epistemic conditions of practice

Even though most of the teachers’ grounds for supporting their knowledge claims were found to be contextual in a relative and somehow subjective way, there were different types of “warrants” for turning contextual grounds into more acceptable and fundamental elements. In most cases, these warrants were based on a commonly-agreed on and accepted principle, value, belief, or assumption in the profession of teaching in particular, and in the lives of human beings in general. In the present study, these warrants are called the “epistemic conditions of practice” or the “epistemic conditions” of practical knowledge. Their specific functions are to link the knowledge claims to the contextual grounds to show why the teachers used particular types of grounds for supporting their associated knowledge claims. Usually, the epistemic conditions of practice were implicit in the minds of the teachers, but could be read by others (e.g., the researcher). The warrants embedded in the epistemic conditions could be interpreted with the question “Why did the teacher offer a particular ground or set of grounds in connection to a
knowledge claim?” Such questions help identify the core value and the psychology of the grounds in connection with claims. For a better understanding, I show how the epistemic condition (i.e., a warrant) links the knowledge claim to the contextual grounds. In the former example, the teachers argued that a good teacher should be strict (The knowledge claim) because if you give students too much freedom, they cannot work (The grounds). In this example, there is an implicit value or principle in the mind of the teacher, and it shows why the teacher has offered this set of grounds for the associated knowledge claim. The value is “efficiency of action” in that the action of “being strict” would be “effective” in bringing about the intended outcome, which is supposed to help students work.

The findings indicated that the teachers linked the contextual grounds to the knowledge claims by means of two fundamental warrants, each of which included some other values and examples: “morality” and “efficiency of action.” Morality includes the subcategories “fairness”, “respectfulness, and non-academic commitment.” Efficiency of action has two basic subcategories: “naive efficiency” and “authentic efficiency.” For more details and explanations about the epistemic conditions of practice and their subcategories, see sections in chapter 5 on these topics. In general, the core assumption in the morality was found to revolve around the concept of “moral care” toward the students. Moreover, the heart of the argument in the efficiency of action was to bring about some indented “practicable” and “pragmatic” results in the minds of the teachers.

4.2.4 Personal pedagogical belief systems

In each unit of the practical arguments, the teachers had implicit theories about the nature of their pedagogical knowledge. In most studies of personal belief systems, i.e. personal epistemology, specifically in the field of educational psychology, the nature of knowledge and knowing in general terms have been investigated in order to describe how simple or tentative, and how certain or relative individuals take a stand regarding knowledge (e.g., Baxter Magolda, 2002; Braten & Stromso, 2004; Chan & Elliot, 2004; Gill, Shton & Algina, 2004; Hammer & Elby, 2002; Hofer, 2000, 2001, 2002, 2004; Hofer & Pintrich, 1997; Kuhn & Weinstein, 2002; Muis, 2004; Schommer, 2002). It has also been of interest to identify the source of knowing and knowledge as a dimension of personal epistemology. In the present study, I have slightly adapted the term “personal epistemology” (personal belief systems) to coin the phrase “pedagogical personal belief systems” to refer to the teachers’ beliefs about the nature of pedagogical knowledge. Two basic dimensions of
the teachers’ personal pedagogical belief systems were found to be beliefs about “how students learn” (e.g., whether they can learn independently and construct their knowledge or whether they only need to be informed by their teachers), and how “teachers should teach” (e.g., whether teachers considered one strategy of teaching absolutely good and effective or whether they considered it to be relative to different conditions). Therefore, in this study personal belief systems were primarily concerned with the nature of teachers beliefs about different pedagogical issues in the teaching context, which may in turn reflect their beliefs about the nature of knowledge and knowing in general as it is understood in the studies of personal epistemology. In other words, the teachers argued about theories of teaching and learning (as a piece of human knowledge), which may represent a concrete example of their beliefs about knowledge. In the earlier example about knowledge claims in section 4.2.1 the teacher implicitly shows a theory about how students learn:

Especially in the English class, there are some occasions when good students can talk to and help some students who know less. It is a peer who is at the same level with him or her, and then you can talk and solve some problems without always having teachers involved. And especially in the English class, there are the occasions when you can really use English. I mean if in the class we act in a way that one student read loudly and others listen, the time when the others are listening is the way they are speaking with themselves. So I use group-work strategy every now and then just because on that occasion they can really talk English (T1, 4 years experience).

It can be argued that tacit pedagogical belief in this unit of argument is the point at which students can “construct” their knowledge when they are talking with each other. Thus, the students themselves are considered a source of knowledge.

In the structure of practical arguments, the personal belief systems were found to be similar to epistemic conditions of practice in that both were implicit in the teachers’ arguments. However, they were different in that, while pedagogical personal belief systems represented the nature of implicit theories of teachers on pedagogical knowledge in the sense of “how” a particular knowledge claim forms, for example, a “certain or tentative” picture of the case, epistemic conditions characterized the core “value” of pedagogical knowledge in the sense of “why” a particular knowledge claim is important and good to apply in the teaching context. For example, in the case just cited above, the epistemic condition of practice is the fact that the action of group-work was effective in helping students learn from each other; thus the value of practice is its “effectiveness.” The teacher took such an action because it was relevant in answering the question “why she did so.” On the other hand,
the argument mentioned implies a “constructive personal belief” in that it acknowledged the theory that students can learn by themselves in answering the question “how do students learn?”

The teachers’ personal theories about different pedagogical issues could be identified from the entire practical argument by asking the question “What kind of personal theory did the teacher sustain about the pedagogical and instructional load (How did they teach and how did students learn?) embedded in the case?” Findings suggested that the personal pedagogical belief systems of teachers had the following main categories, each of which including further dimensions:

- Progressive personal theories of learning
- Tentative personal theories of teaching
- Simple personal theories of teaching and learning.

4.2.4.1 Progressive personal theories of learning

In the progressive theories of learning, the teachers generally were found to acknowledge the active role of learners in knowledge construction. They also believed that learning is not an isolated, fast, and passive process. Accordingly, in the teachers’ progressive theories of learning there were two important dimensions about the characteristics of the learners and learning: “constructing knowledge” and “gradual learning”.

**Constructing knowledge:** In constructing knowledge, the teachers’ practical arguments implied the belief that students as learners can construct their knowledge in different ways. Based on this belief, the source of knowledge is not only the teacher, and his/her practice is not solely aimed at transferring the content and learning materials to the students. Students themselves can actively participate in the learning activities in the classroom and construct knowledge on their own:

Q: Why do you personally like group-work strategy? I do not like the class having such a disciplinary atmosphere. I believe that students can teach each other and solve problems. They are very good in giving advice to each other (T5, 15 years experience).

From this point of view, the relationship between the teachers and students is based on mutual participation in the process of teaching-studying-learning whereby the teachers are no longer regarded as the authorities in the classroom. Moreover, in the actual context of the classroom, the data indicated that the progressive instructional strategies and pedagogical orientations were associated with the teachers’ belief about constructing knowledge. In other words, the learners were supposed to be placed at the heart of learning and
pedagogical activities; in addition learning is not seen just memorizing academic facts by students, but is more about actively engaging in academic tasks, and thus understanding them deeply. For example, the teachers used “group-work” strategy in teaching whereby the students could dynamically contribute to the process of teaching-studying-learning:

I think that students in general, different types of students are fine; I think it is amusing to you sometimes how mature some of the students can be, what students are capable of doing when you give them the opportunity to do things, because one of the things the teachers do a lot of time is that they underestimate students in the class. But sometimes students really, really surprise you (T3, 9 years experience).

In this argument, the teacher clearly appreciates the capability of the students in the learning, and how well they can construct their knowledge in the classroom.

Gradual learning: The other important dimension of the teachers’ theories about learning was found to be related to the “speed of learning.” In their practical arguments, the teachers frequently said that their actions point toward the future, and they were hopeful about the positive changes in the learning capacity of the students. The implicit belief that lies behind such an argument is that learning does not happen quickly and in the short term, but it a “gradual process with long-term yield”:

…and again it comes back to learning to know the students. When you know the students, you can push them to certain spots. And, sometimes what I do is that I will push them a little, and then I will push them a little more, and then when I see that, Ok, they are getting to a limit, and I will leave them alone for a little while. So, they can get used to the idea that this is expected for me, and hopefully they start working and learning and doing the job in that way. And when I see they are comfortable with that, I push them a little further. You know, it’s kind of like growing, growing a little further; I think learning can be similar to growing (T6, 17 years experience).

And again, the core of such understanding is the belief that true learning does not happen by memorizing the learning tasks, but involves a longer and deeper process whereby the learners need to reflect and reason about what they are learning. With such reflection and reasoning they are more likely to construct their own knowledge.

4.2.4.2 Tentative personal theories of teaching

In their arguments, teachers generally believed that the teaching context is bound up uncertainty; thus, a kind of predetermined, certain, and simple
knowledge may not work out in meeting the pedagogical demands. Instead, the pedagogical knowledge should be tentative and flexible according to volatile situations of the classroom. In this category, there were three significant dimensions in the teachers’ personal theories of teaching: flexible pedagogy, integrated pedagogy, and comprehensive pedagogy.

Flexible pedagogy: In this category, the teachers frequently saw the volatile character of the classroom, and thus they appreciated flexible and reflective ways of dealing with them. The core of this category is that the context of teaching is unstable and each pedagogical location (i.e., any specific occasion when a teacher has to decide what pedagogical practice should be used) involves different characteristics. Thus, there is no absolutely perfect pedagogical knowledge that the teachers can apply in different situations: they simply need to be flexible in their practice and their pedagogical beliefs as the case demands. In their practical arguments, the teachers frequently used a kind of “rebuttal” (I will come to this term later in this chapter) of their main claims, in order to show that their main pedagogical claim is a temporary hypothesis, and not always may work:

(Q: What kind of teaching method, if any, do you see more appropriate for your teaching in this class?) Generally, I try to present the main point of my lesson, and then to engage the students in working with that in different ways. But I think I’m a kind of “monkey hanging” from an umbrella strategy; I’m kind of swinging from one method to another, back and forth, picking the ones that I think and feel would be appropriate. I don’t see any theory and teaching strategy that I can use constantly. I am just using one that might work here and there. Sometimes it is student-centered, and sometimes it is teacher-centered, and it might even change in the middle of the lesson (T6, 17 years experiences).

Flexible pedagogy was found to be based on “relativistic epistemology” in the sense that each pedagogical action is a reflection of the particular context in which it is done. Thus, a particular teaching strategy, for example, may be good enough in context “A”, but not necessarily in context “B” or other situations. It was also the case that relativism was not “free of commitment” in such a way that the teachers would say “everything in the teaching context is relative,” and therefore, based on the situation we could do anything. Rather, there was an “embedded obligation” in the teachers’ flexible pedagogy whereby they tried to carry out the “right action” in the “right pedagogical location.” This finding is accord with what Hofer and Pintrich (1997) called “commitment within relativism.”

Integrated pedagogy: The data revealed that in addition to seeing the teaching context as an unstable place in its need for flexible pedagogy, the teachers understood teaching as a complex practice demanding a tentative
course of action. From this point of view, the teachers’ practical arguments could imply that most educational phenomena in the teaching are intertwined and thus are not isolated events. One important example of such understanding was related to the “content of the subject matter.” The teachers frequently stated that the different “academic concepts” for each subject matter (e.g., different chapters in a textbook) are quite interrelated. Thus, in the act of teaching, they tried to recall the content of previous lessons in order to link it to new lessons. The other significant example of “integrated pedagogy” was to consider the mutual relationship between the “mood” of learners and their social and family situations with their learning situations:

I think it is very important that you as a teacher not only teach. Because you have to somehow listen to what the students have in their hearts, because they are not robots and the students who just listen and learn; they are human and they have worries and perhaps something is wrong at home and something is wrong in class and they cannot study in such a situation. So, I discussed a lot with social workers and nurses. As a teacher, you have to take care of the whole person, the inner and outer (T1, 4 years experience).

Comprehensive pedagogy: In their arguments the teachers acknowledged that “teaching is not only teaching,” i.e., transferring the content and existing curriculum to the students, but is also about the nurturing the character of the students to become good citizens in their society. In other words, the teachers tried to argue that teaching, “transferring content” and “nurturing the character of students” are not two isolated entities, but rather are inclusive; teachers should therefore acknowledge both aspects in their work. In the case below, an experienced class teacher explains what teaching looks like for her:

(Q: What is the heart of your profession at this time? What do you think about all the time?) Actually, it has nothing to do with teaching, because I have noticed in my profession things are 50 % 50 %. 50 % is teaching and 50 % is educating: how to behave, how to deal with friends, how to eat, how to get invited to parties, how to talk with your friends, and how to behave in concerts and we should not smoke; at this moment actually I love teaching, but quite a lot of time in the class I do not spend on teaching; I try to help students to solve the problems that they have (T1, 4 years experience).

The data show that “integrated and comprehensive” personal theories of pedagogy reflect the concept of “complex knowledge” as one basic dimension of personal epistemology. Altogether three dimensions of the teachers’ personal theories of tentative teaching indicate that in the teachers’ practical arguments teaching is seen as an unstable, complex, inclusive, and multifaceted job.
4.2.4.3 Simple personal theories of teaching and learning

In this category, teachers failed to pay enough attention to the complexity and uncertainty of issues in the life of the classroom; they espoused a kind of simple and isolated theory from the tentative realities of the teaching context. In this category there were two dimensions: one was related to the teachers’ personal beliefs of learning and how students learn; the other was about teaching and the way teachers teach: certain learning capacity, certain pedagogy.

Certain learning capacity: According to the data, teachers sometimes believed that some students, for various reasons, may not be able to change and improve their existing cognitive lives. They tacitly supposed that the “learning orientations” and perhaps “learning capacity” of a group of learners are ‘poor,” and may not be improved upon. In such cases, teachers implicitly argued that this group of students has a “certain academic and educational destiny,” and these students may not have the ability to become good learners in the future:

…there are students and the key things are that you look at their background and know their background, where are they coming from; for example, with Emanuel (a student) quite often I would just ignore him because I know that this is how he works. And also Emanuel is a kind of my project; I think when he is complaining and arguing, there is a little thing, that is something that he has been doing so far many times. If he is just complaining in the classroom, I am happy that he is not running away or getting angry and slamming things around. Ok, I let him to take a seat in the classroom and complains his life all the time (T6, 17 years experience).

The core of such beliefs about a student’s character was found to be that this group of students for different reasons such as family background or inner characteristics has somehow an innately fixed capability to engage in the learning tasks. Teachers therefore were somehow frustrated in trying to motivate and engage this group of students in learning activities; as a result their pedagogical orientations toward the students were “cool” and free of “passion.”

Certain pedagogy: Along with the sound theories about teaching, the teachers were also found to hold some simple beliefs in their practical arguments. By contrast to other aspects of the teachers’ personal theories of teaching, the teachers’ practical arguments sometimes reflected theories in which their pedagogical knowledge was seen as a definite, effective tool in managing the practice of teaching. This somehow implied that the teachers’ practice involved a degree of “certainty,” since it had some positive results for the “teachers” and for a certain percentage of students. I call this implicit theory
“certain pedagogy” whereby teachers do not care about other possibilities and alternatives. In other words, the teachers did not reflect on a given pedagogy to see how it can work in various situations. In certain pedagogy, the teachers also ignored the different aspects of a case, mainly focusing on one aspect because it was associated with some indented results:

(Q: As a teacher, how do you think you can achieve a balance between having a positive and dynamic learning environment while managing other issues like dealing with disorder in the classroom?) I think it is a huge challenge, because a lot of teachers find it too difficult to escape from. It is difficult to have a disciplinary approach on the one hand, and then on the other hand you are also trying to make the atmosphere as relaxed as possible so the students secure in that environment. I think there are two components, but anyway, I often try to establish a disciplinary situation since I cannot work with a class of 20 children without order; I have to do that, and it has been working for me during my teaching experiences (T4,10 years experience).

Based on what was found and presented in sections 4.2.4.1–4.2.4.3, it should also be pointed out that the teachers’ personal pedagogical epistemology was found to be a belief system consisting of some more or less “independent” dimensions that vary along a continuum from simple beliefs to sophisticated theories about teaching and learning. In other words, the teachers were found to have both naïve and authentic beliefs independently in their belief systems. For example, a teacher might have two dimensions of certain pedagogy and flexible pedagogy in his belief system. (See, for example, Schommer, 2002). However, the data showed that the progressive and tentative theories of teaching and learning were found to underlie the teachers’ practical arguments in most cases. Table 4.2 gives an overall picture of the rate of teachers’ personal theories of teaching and learning according to three main categories mentioned in this section:

<table>
<thead>
<tr>
<th>Personal pedagogical belief system</th>
<th>frequency</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Progressive theories on learning</td>
<td>54</td>
<td>23.4</td>
</tr>
<tr>
<td>Tentative theories on teaching</td>
<td>111</td>
<td>48.3</td>
</tr>
<tr>
<td>Simple theories on teaching and learning</td>
<td>65</td>
<td>28.3</td>
</tr>
<tr>
<td>Total</td>
<td>230</td>
<td>100</td>
</tr>
</tbody>
</table>

As shown, the data indicate that in 71.8% of their practical arguments teachers based their knowledge claims on sophisticated (progressive and tentative)
personal theories of teaching and learning. Of this amount, 48.3% of cases were related to theories of teaching. This shows that the largest numbers of teachers’ personal pedagogical theories correspond to “how they should teach.” In other words, they know more about “how to teach” than about “how students learn.”

4.2.5 “But-pedagogy”

One of the salient aspects of the teachers’ practical arguments was to offer alternative theories to the main knowledge claims in each argument. In this research, I call these alternatives “but-pedagogy” rebuttals, since they were mainly about putting forward an alternative pedagogical claim to the main pedagogical claim (i.e., knowledge claim) over the span of the entire argument. The data suggested that “but-pedagogy” premises established what was wrong, invalid, or unacceptable about the main claim in the practical argument. I implied a unit of “but-pedagogy” in an argument by asking, “What were the other views offered by the teachers on a given case?”

I would like to say, I said much about group working, but the actual teaching is not always that; I think that maybe group-work strategy once a week is optima; time goes by and maybe I do not have enough time. Also students become tired with that. It is not always being done. And the main point is that how to teach is not about what subject you teach; rather it is about what groups of pupils you are teaching. So it is not the subject that tells you how you should teach, it is the group that tells you how to teach. Everything can be taught in many ways (T5, 15 years experience).

The data showed that the teachers did not use “but-pedagogy” rebuttals in all of the practical argument units. In some cases teachers offered an alternative to the main claim, while in other cases they still considered the main claim to be valid and good. There were two types of “but-pedagogies” in terms of to the extent to which the main claim was evaluated and how the alternative was integrated with the main claim: “simple but-pedagogy” and “incorporated but-pedagogy”.

In the simple “but-pedagogy”, although teachers expressed a new or alternative theory to the main knowledge claim, the main claim still remained untested. In such cases teachers “theoretically” offered the possibility of believing in the different pedagogy, but the “practical judgment” and action was still in favor of the original knowledge claim. They insisted that they could have acted in a different way, but what they did during the lesson was good enough; thus, they continued to act in the same way. In the incorporated
“but-pedagogy”, however; the teachers reflected on the weak part of the main argument and argued how it could cause a problem in the process of teaching-studying-learning. Thus, they offered and “acted” on a new alternative pedagogy in order to balance the whole argument and enhance the weak part of the main knowledge claim. The main difference between a “simple but-pedagogy” and an “incorporated but-pedagogy” was that in the former the teachers did not “evaluate” or see the possible negative consequences of the main pedagogical knowledge claim; thus, they still insisted on doing or believing in it, even though they mentioned a new theory. In the “incorporated but-pedagogy,” the teachers were found to be aware of the shortcomings related to their main claims and had evaluated it vis-a-vis the new and different pedagogy. The outcome of such evaluation and comparison was that they integrated the two or more alternatives; thus, they made practical judgments based on such integration and received the benefits from two or more pedagogical alternatives in conducting the classroom activities. In the following case, though the teacher appreciated an alternative, he failed to act on it:

(Q: You seem to have a particular pedagogical structure for your teaching; don’t you think that this structure limits students so that they cannot freely go further in their learning tasks?) In my class, as far as I know my students, they need to have some structure to do their work; otherwise, they fail to follow my lesson and do their tasks. I also think that they sometimes need to go outside my instructional framework if they can. But I still believe that in this classroom, students should be given particular guidelines in order to accomplish their learning goals (T3, 9 years experience).

Regardless of what type of “but-pedagogy” teachers used in their practical arguments, Table 4.5 illustrates that only in 29% of cases, did the teachers offer an alternative theory to their main knowledge claims. From this number, 20% were found to be based on incorporated “but-pedagogies.”

**Table 4.3 Frequency distribution of categories of “but-pedagogy”**

<table>
<thead>
<tr>
<th>“But-Pedagogy”</th>
<th>frequency</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated “but-pedagogy”</td>
<td>46</td>
<td>20</td>
</tr>
<tr>
<td>Simple “but-pedagogy”</td>
<td>21</td>
<td>9.1</td>
</tr>
<tr>
<td>Units without “but-pedagogy”</td>
<td>163</td>
<td>70.9</td>
</tr>
<tr>
<td>Total</td>
<td>230</td>
<td>100</td>
</tr>
</tbody>
</table>

In any case, there were two important assumptions underlying the teachers’ “but-pedagogy”: First, the context of teaching is complex, volatile and un-
predictable; thus teachers need to be flexible in applying pedagogical knowledge and practice: sometimes they may need to use conflicting pedagogies in order to cope with the demands of the classroom. Second, “but-pedagogy” indicates an acceptance of falsifiability in the teachers’ knowledge claims in that they considered their knowledge claims to be incomplete premises that can be improved upon. “But-pedagogy” rebuttals therefore were found to indicate that teachers’ practical knowledge is a multi-faceted tool of which each facet, while having one or more alternatives, has its own specific application and function. Depending on the classroom changing situations, the teachers exploit practical knowledge when they needed: as far as a specific pedagogy was considered to be “good” in the different situations, the teachers used it; however, as soon as they found this to be an inappropriate practice, they shifted the facet and tried to apply another suitable one.

4.2.6 Backing

In some of their arguments, teachers provided additional evidence in different forms to support or “back up” their argument whenever there was a strong possibility that their argument might be rejected by others. The data indicated that the type of backing was primarily based on the extra explanation (e.g., the narrative description of the case) with which the teachers intended to “illustrate the sensibility” of their arguments. The backing was found to have a complementary function in relation to the epistemic conditions of practice (i.e., warrants), because both concerned about the “reliability” of the contextual grounds: they addressed the “rationality” rooted in the contextual grounds and their associated knowledge claims. However, backing was more objective and explicit than the epistemic conditions of practice, which mostly were implicit in the grounds. In practical arguments, I could identify the backing by asking the question “What supplementary evidence, explanation and factual information did the teachers offer for backing up the contextual grounds?”

(Q: In part of your teaching you paired up the students, why?) Because I think a lot of the time one student can actually teach the other student who does not really understand. I think some of these children pretend that they actually understand, and as a teacher I think that sometimes they do not understand what they claim to. So it is a very good thing for me to double up such students and provide a chance if one of the students who understands the lesson to explain it to those who really do not understand. I have experienced such a phenomenon a lot of time when I have asked questions and students say that they understand, and when I turned around and probe with some other questions to test them whether they really un-
derstand, I see some students who really do not understand, and then I proceed to sit them down next to the ones who do (T3, 9 years experience).

In this example, the teacher backed up his argument (i.e., that the students sometimes pretend to understand the lesson) with his personal experience. Both the grounds and the backing were bases for the action of “paring up the students” in order to let the good students teach and help those who had not understood. As is clear in this example, the backing may play a significant role in enhancing the quality of the practical argument. However, as with “but-pedagogy” rebuttals, the teachers failed to offer backing for every single practical argument. In more than 30% of the units of analysis, I found that, depending on the case, they backed their contextual grounds in two inclusive ways: with subjective backing and objective backing.

**4.2.6.1 Subjective backing**

In some units of analysis, the teachers sustained their arguments (i.e., the grounds for justifying knowledge claims) by means of personal explanation, understanding and their own interpretation of a case. These means were considered to be subjective in that the judgment of the quality of explanations was mainly attached to the teachers’ analysis and description, not something out of their understanding of the case. In other words, the type of supportive premises failed to be based on the “facts” and the concrete evidence that could be isolated from the teachers’ personal judgment. Rather, the teachers used a kind of “rhetorical” analysis and description to back up their earlier mentioned grounds of the arguments. Thus, the teachers tried to make sense of their arguments by what I call “reasoning on reasoning” or “meta-reasoning,” meaning that they reasoned about reasoning. Both the contextual grounds on which the teachers had already relied for justifying their knowledge claims and the backing for supporting these grounds were based on a kind of reason-giving approach. The significance of offering this type of backing was to break down and describe the meanings of the argument in order to illustrate its entire essence to others (i.e., an audience). In this analytical way, the teachers tried to discuss different aspects of the issue at hand, and that how those aspects are linked in the argument, specifically, how such links make the argument sensible:

(Q: Could you please tell me why, most of the time you insisted that the students need to finish their practice on time?) I believe that if we do not have discipline in the classroom, then the teaching and what you intend to convey in one particular lesson may not be accomplished. Because I do find a lot of the students very, very undisciplined. So I think that the students learn from each other and they learn from the teacher as well. If you have a teacher who doesn’t install discipline and
you are not disciplined in your ways of doing things in the work that you have provided for the students, then it is going to be a bad example for the children in the classroom. And as Jane Dewey said “students learn by example.” And they always look back and say ok my teacher did that and did not do that, so if she or he does something, then I can do it too (T2, 4 years experience).

In this example, the teacher offered an analytical backing (i.e., the students may learn the bad behaviors from each other and from teacher, thus he need to install a disciplinary classroom) rooted in his understanding. By offering such an analysis the teacher indented to illustrate the validity of the grounds (i.e., a lot of students are very, very undisciplined) and knowledge claim (i.e., if we do not have discipline in the classroom, then the teaching and what you intend to convey in one particular lesson may not be accomplished) thus making the entire argument sensible.

4.2.6.2 Objective backing

The teachers were found to have another significant way of backing up their contextual grounds in the span of the structure of their practical argument. Somehow different from the former type of backing, teachers used what I call “objective backing” to support their grounds based on factual information with examples from the context of real teaching and sometimes with statements rooted in and linked to existing scientific and theoretical findings. In the most frequent cases of objective backing, the teachers supported their contextual grounds with facts related to pedagogical restrictions in the classroom. This was the case whenever the teachers showed that there are different factual interventions in the classrooms out of teachers’ control, and the pedagogical actions have to be regulated based on such interventions. For example, in the case below a teacher claims:

…for a teacher it is not always possible to engage the passive students in the learning activities because there are a lot of such students who fail to have enough willingness and passion to participate in the classroom activities …. And one problem with my class, which is a big class, is that I cannot always take individuals aside and talk face-to-face, and it is sad that for one lesson I have only one minute per person. This is a big problem (T1, 4 years, experience).

As is clear in this example, the teacher has backed up her claim and its related grounds based on two intertwined “facts.” One is the “time” or length of the lesson, which is too short to engage the “large numbers” of students, which is the other fact, in the same classroom. As is obvious, this particular factual backing is not totally attached to the teacher’s interpretation, understanding, and analysis. Rather it is about some external facts that both the teacher and
the other (e.g., the researcher) may agree on using more or less the same judgment.

The other important case of objective backing was the use of pedagogical “examples” to illustrate the “believability” of the argument for the audience. The teachers frequently exemplified their arguments by talking about the actual issues related to a given argument. The language that the teachers used was primarily based on “analogical” reasoning whereby they compared the logic of their argument with the features of examples about the case:

...we did study different theories when I studied. When I was there, there was a constructivist idea. I do believe it in quite hugely, but then I also think that the behaviorism by which I mean that you need to repeat certain things and you need to give examples, and the students repeat some things. I think that it is not totally a bad thing. In certain subjects you need to do that; like you need to do that in languages. In teaching a subject such as English language, you cannot always require students to think about words, instead you may ask them to learn and memorize those words by heart and by repeating. So in certain ways I do believe in behaviorism, but then again in other ways, I believe in certain things like history, or other subjects, you need to let them think more independently and let them learn academic tasks by themselves (T, 4 years experience).

Even though this type of backing is somehow attached to the teachers’ interpretation of situations, it is possible for the rest of the audience to see an “objectively reasonable belief” in the whole argument. For example, in this case, the teacher has linked the use of behaviorism and constructivism in different subjects with her personal understanding and interpretation (i.e., the way she defines and understands the two perspectives), but there is still room to reach an objective judgment about the believability of the argument when she illustrates with actual application of the perspectives. Table 4.6 shows that in only 32.2% of the units of analysis did the teachers back up the grounds on which they had relied to justify their knowledge claims. Of this amount, 13.9% of cases were backed up by subjective evidence and 18.3% by objective evidence:

<table>
<thead>
<tr>
<th>Backing categories</th>
<th>frequency</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subjective backing</td>
<td>32</td>
<td>13.9</td>
</tr>
<tr>
<td>Objective backing</td>
<td>42</td>
<td>18.3</td>
</tr>
<tr>
<td>Units without backing</td>
<td>156</td>
<td>67.8</td>
</tr>
<tr>
<td>Total</td>
<td>230</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 4.4 Frequency distribution categories of backing.
4.3 The forms of teachers’ practical arguments

The form of the practical arguments, in this study, is about “the language of expression” which the teachers used. The language of expression was important to study for how it could illuminate the patterns within the teachers’ arguments (e.g., how are the different forms of premises associated with different types of grounds, personal pedagogical epistemology, and epistemic conditions in the span of the practical argument?). The data showed that teachers expressed their practical arguments in two distinctive forms: a cognitive form of expression and an affective form of expression.

4.3.1 The cognitive form of practical argument

This form of expression was found to be presented as “explicit premises” whereby the teachers made an “informative judgment” about the case under argument. In other words, this form of expression involved giving out some information and meanings, but in distinctive ways. My data showed that the cognitive form of practical argument is in accordance with the work of Fenstermacher and Richardson (1983) in which teachers used four types of premises: value, stipulative, empirical, and situational.

4.3.1.1 Value premises

The main idea embedded in the “value premises” was an “ethical message” that teachers specified to support their argument. This ethical message had its point in bringing about good results for the students. In other words, the teachers justified their actions by saying that the results of the actions were supposed to be good for students in different ways. There were two basic examples of “good” in the minds of teachers for the students. One and perhaps the most frequently stated was providing a good learning atmosphere to improve “learning capacity of the students”:

A good teacher needs to have social skills, because if the teacher has difficulty in establishing a good relationship with the students, then the classroom would not work and pupils would not learn the lessons in a sound way (T2, 4 years experience).

The other important example of value premises was the type of case in which the teachers tried to provide an educational atmosphere where the “students” could “feel comfortable”; thus, a comfortable feeling is the “value” of the premise and it is addressed toward the students:
...when I walk around I am observing every one, although my intention would be to observe one certain person. In this way, the pressure [the good of action] would not be so big for someone [the student to whom the good of action is intended] who has some difficulties in learning the lessons. So as a teacher, instead standing in front of classroom, I prefer to walk around (T1, 4 years experience).

In this case the value of the reasoning was the help it could provide in lessening psychological and personal pressure on the students. For example, students should not have to feel ashamed in front of other classmates.

4.3.1.2 Stipulative premises

Stipulative premises were another type of cognitive form by which the teachers expressed their practical arguments. Most often, in this type of premise, the teachers expressed their pedagogical meaning and understanding rooted in teaching and learning theories. In other words, they expressed their practical arguments in the form of personal theories about different pedagogical elements. In the following example, a teacher states her personal meaning or theory of reliable learning:

(Q: You did some exercises before the test, which was supposed to be held one day later; why?) Maybe, I wanted the students to get enough exercise so that they would have the basic idea of how to think during real exercises or on a test, the exercises also help students to recall the previous lessons and thus link them to what I want to teach today, I call this reliable learning when they can recall and link various parts of learning tasks. That’s why I usually give the students some exercises to work on before we begin the new lessons (T4, 10 years experience).

4.3.1.3 Empirical premises

The other kind of cognitive expression was empirical premises. This sort of premise was called empirical since it was expressed in the form of “testable hypotheses and presuppositions” about different educational issues in the context of teaching. There were two basic examples of empirical premises in the teachers’ practical arguments. The first was the conditional premise, whereby the teachers articulated their knowledge claim in light of the presence or absence of some specific conditions:

...students are fine when they get to speak enough. If I completely ignore someone, then when he/she goes outside the class, he/she becomes angry. But I have never done such things. When I give the students enough time to speak and pay them enough attention, then they will be fine, even I do not ask them all the time. For this reason, I will give the students enough time and enough audibility in the classroom (T2, 4 years experience).
In the case above, the teacher discusses that the students would be fine under a certain condition: “the teachers pay enough attention to students and give them enough time to talk.” Therefore, the empirical and testable premise would be “students will be fine (e.g., learn or become active learners), provided that teachers pay them enough attention. The second example of an empirical premise was the presuppositions that teachers had about students or other pedagogical issues in the context of teaching:

…students in the elementary grades are so sensitive to their classmates and how they behave, react, and think. So a good teacher should not cause any problem for kids in front of their classmates. If the students feel any problem in front of their classmates, then they will not participate in the classroom activities, and it is just this atmosphere that postpones the development of their social skills (T3, 9 years experience).

In this case, the teacher has an established belief (i.e., an assumption) about students (i.e., students are very sensitive to their classmates in the elementary grades) and based on this belief express his practical argument in the form of an empirical premise: “in the elementary grades, if teachers cause any problem for students, they fail to participate in the learning activities actively”.

4.3.1.4 Situational premises

The last category in the cognitive expression was the situational premises whereby the teachers expressed their practical arguments based on a particular situation. The situational premises, in this research correspond to situational context, which was one category of “contextual grounds” (refer to chapter 5). Factual restrictions were the most important examples of this type of premise. These restrictions were found to be related to such issues as students’ abilities to learn and do things, the condition of a class, a subject matter, the time and duration of the lessons. For example, in the case below the teacher forms her practical argument based on the time in the day when a lesson takes place:

…in the last hours of my teaching, I try to do funny and more exciting things, since at those times the students may be tired and thus cannot put up with more serious work. For example, at the end of the day I sometimes divide the class into small groups and ask them to tell me what they have learned during the day by performing a short and simple skit with one or two of the groups. I try to adjust my teaching practice based on what is happening inside the class on various occasions at different times; I cannot always apply some prescribed actions for conducting teaching. Many times you would encounter instructional boundaries and you have to make some changes in the way you are teaching (Teacher 6, 17 years experience).
A qualitative report on cognitive premises shows that situational premises have the highest rate in the teachers’ arguments with 32.5%. Table 4.5 illustrates a general quantitative description of cognitive premises:

**Table 4.5** Distribution of cognitive premises in teachers’ practical arguments.

<table>
<thead>
<tr>
<th>Cognitive premises</th>
<th>frequency</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value premises</td>
<td>57</td>
<td>24.8</td>
</tr>
<tr>
<td>Stipulative premises</td>
<td>43</td>
<td>18.7</td>
</tr>
<tr>
<td>Empirical premises</td>
<td>55</td>
<td>23.9</td>
</tr>
<tr>
<td>Situational premises</td>
<td>75</td>
<td>32.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>230</td>
<td>100</td>
</tr>
</tbody>
</table>

As a new finding regarding the cognitive form of practical arguments, I also observed that these four types of premises sometimes overlapped in such a way that I could not precisely identify in which particular form the relevant practical argument was expressed. In the example below, value and empirical forms overlap:

> For literature, I show movies to the students instead of teaching difficult books, because I have experienced that the students whose mother tongue is not the language of my instruction [English], if you give them difficult literature to read, they are most often stuck and cannot learn it well. But with a movie, they are quite relaxed and comfortable, and they enjoy it when they watch it. Besides, they learn the things I have in mind to teach them in discussion about the movie afterward (T3, 9 years experience).

In this example, it is an empirical premise when to say “in the literature (i.e., English literature), students with a native language other than English function better, if a teacher shows them a movie instead of teaching a book.” It has also beneficial and good for the students, i.e., it is a value premise when the teacher says “students learn better, enjoy and are more comfortable with this kind of strategy.” This finding shows that, in many cases, we cannot precisely identify the form of a premise. The findings related to four types of premises may thus be an indication of the complexity and mutability of the context of teaching that cannot be dealt with in universal fixed forms of justification.
4.3.2 Affective forms of the practical arguments

In each unit of the practical arguments, the teachers were found to have some kind of “implicit” emotional concerns regarding different aspects of their job. While in the cognitive form of expression the teachers explicitly gave out some informative messages regarding their practical arguments, in the affective language they could show their feelings and concerns in different ways. There were three significance types of affective forms by which the teachers articulated their practical knowledge: “fears,” “hopes,” and “commitment”.

4.3.2.1 Fears

In most cases, the teachers were found to hesitate about the results of their actions in regarding to students. In other words, they worried about the negative or wrong things that might happen in the classroom. Thus, they mainly expressed their practical arguments in the form of fears they had about events in the classroom. In such cases, they were interested in preventing or avoiding wrong things that may happen in the classroom:

…but, if the students do not have the basic skills, what I see as basic human skills, it is impossible to work. If there is somebody pushing and puking all the time and, you know, using put-downs, and everything, then how is the rest of the group going to work? Because they are either constantly worrying about the fact that they are going to be the next target, or they are worrying about whether they will be able work with this person. So, my job is to make sure every single child in this classroom has the chance to learn and nobody should interfere with that (T6, 17 years experience).

Fear about students’ learning (e.g., students may not learn things well), students’ feelings (students may not feel comfortable in the classroom), managerial issues (e.g., disruptions in the classroom caused by other students), students’ engagement (e.g., students may not engage in learning goals well enough), and the effectiveness of teaching strategies (e.g., a teaching strategy may not work properly) were the most significant examples of this type of affective form of expression.

4.3.2.2 Hopes

One significant example of the affective expression of the practical arguments was what I call “hopes.” This feeling represents the optimistic passion that teachers attach to their practical argument. In cases related to affective form the teachers wanted to accomplish some kind of learning goals in the classroom. In other words, they were hopeful that something good would
happen as a result of their actions. Thus, instead of having fears and a sense of avoiding things, the teachers were interested in initiating and then completing the learning activities. In the case below, the teacher is quite hopeful about making some positive changes in the hard students who disrupt the class repeatedly:

… I think that you have to look at the positive; you have to see little steps that the students are making, even though, for example, there is one student in this class who tends to make trouble all the time and he does not care if there are other students in the class. But other students say, oh, he is doing that, he has a [typical] reputation in the classroom. I am not going to save him; I can’t, I know. But I can lead him a little bit, for example, if he wants to create a disaster, I try to lead him and push him in a certain direction. So my job is a kind of to give them keys; they might have all the doors locked around them, and my job is to give them keys and try to do this, and if it does not work, I will try the next key and another door (T6, 17 years experience).

It seems that the hopeful teachers are “risk-inclined” persons in their interactions with challenging situations in the classroom, whereas when the teachers bring fears to their argument, they try to be “risk averse,” and thus are conservative about keeping the existing situation as it is. Therefore, the teachers were found to be interested in a challenging practice whenever their arguments were expressed in the form of “hope,” while the teachers with “fears” in their practical arguments were interested in avoiding challenging practice.

4.3.2.3 Commitment

In many cases, the teachers stated their practical arguments in the form of “feeling committed” to their professional tasks. In this way, the teachers were found to feel significantly obligated to their students: they wanted to provide and to help students with personal, general, and academic problems in order to actualize their potential capabilities. To accomplish these tasks, the teachers tried to use their best practice:

(Q: There were some students who did not participate in the classroom activities. Would you like tell me something about them?) There are students really never raise their hands, and they do not really want to participate in the activities. I think that these students do not have good social skills because a lot of time it does not happen at home; parents go to the work and they don’t have enough time to spend with the children and television has usually replaced conversation at home. In such situation, it is my job to help students to become more active and enhance their social interaction in the classroom. As a teacher, I am obligated to pay a special attention to these students (T3, 9 years experience).
Findings: the structure of teachers’ reasoning

There were two distinctive sides to the teachers’ commitment to their students and to their job as whole when they expressed their practical arguments in this form: feeling a commitment to teaching and learning in a sound way, and an obligation to care about the students as a whole, not just as someone who should learn some academic materials. The example mentioned above shows how the feeling of commitment flows through this unit of practical argument in helping the students cope with non-academic problems.

The findings showed that “fears” were the most frequent form of expression in the teachers’ practical arguments. This may indicate the challenging character of teaching and teachers’ uncertainty about the consequences of many pedagogical decisions. In other words, most of the teachers’ pedagogical decisions were supposed to have a degree of risk in bringing about undesired results; thus they were found to be pedagogically cautious and conservative in their practice. Table 4.6 shows that the “commitment” has the lowest rate (20.4%) of expression in the teachers’ arguments whereas the “fears” have the highest rate with 49.1%.

Table 4.6 Distribution of affective expression forms of teachers’ practical arguments.

<table>
<thead>
<tr>
<th>Affective form of expression</th>
<th>frequency</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hopes</td>
<td>70</td>
<td>30.4</td>
</tr>
<tr>
<td>Fears</td>
<td>113</td>
<td>49.1</td>
</tr>
<tr>
<td>Commitment</td>
<td>47</td>
<td>20.4</td>
</tr>
<tr>
<td>Total</td>
<td>230</td>
<td>100</td>
</tr>
</tbody>
</table>

4.4 Conclusion of chapter four

This chapter dealt with the structure (elements and forms) of teachers’ practical reasoning. As discussed above, the teachers’ reasoning about their practical knowledge can best be conceptualized within the framework of so-called “practical arguments.” Each unit of the teachers’ practical arguments was found to be a coherent argument about a particular topic. In the structure of such a coherent argument, there were six interrelated elements in the span of the whole practical argument. The knowledge claim was the first element with which teachers usually expressed their practical answers to different situations in the classroom. The knowledge claim was a basic aspect of the practical arguments that organized the whole argument, and to which the other elements were related. The grounds formed the second element in the practical arguments, and revealed the types of reasons on which the teachers
relied to support their knowledge claims. The epistemic conditions of practice and personal pedagogical belief systems were the other two important elements of the teachers’ practical arguments. While the epistemic conditions of practice (i.e., warrants) identify “why” certain grounds are relied on (i.e., what value is embedded there), personal pedagogical belief systems help us to understand “how” the entire argument represents the teachers’ theories of learning and teaching. Backing was another element and it was presented to provide extra or complementary objective and subjective supports for the arguments. These three elements (i.e., epistemic conditions of practice, a personal pedagogical belief system, and backing) were generally found to indicate the “rationality” that lie behind teachers’ practical arguments. Personal pedagogical belief systems and the epistemic conditions of practice were mainly implicit in the argument, while backing was explicitly mentioned. “But-pedagogy” rebuttals, the last element, were the alternatives to the main knowledge claims and therefore to the whole argument. Figure 4.1 illustrate how different elements of teacher’ practical arguments are related to each other.

Figure 4.1 The structure of teachers’ practical arguments in terms of its elements.
As illustrated in the Figure, teachers’ knowledge claims (practical knowledge) are justified on the basis of professional, situational, and personal contexts. Teachers have implicitly argued that relying on these contextual grounds are relevant for justifying practical knowledge because these grounds stand for morality and efficiency of action. (The two shadowed boxes at the top and bottom of the figure show the implicit elements of the teachers’ practical arguments i.e., the epistemic conditions of practice and personal pedagogical belief systems). On the one hand, subjective and objective backings are connected to the grounds to give more information about the grounds their corresponding knowledge claims. On the other hand, “but-pedagogy” is linked to the main knowledge claims, suggesting that the main knowledge claim may not always and in all situations work. At the bottom of the figure is the element of personal pedagogical belief systems, which is extracted from, and rooted, in, the entire argument.

The other aspect of the structure of the teachers’ practical arguments was the language of expression. Two distinctive forms of expression were embedded in their practical arguments: cognitive form and affective form. While cognitive form was found to represent some “epistemic” messages and meaning, affective form revealed the types of feelings and emotions that teachers had about their practice. Value, stipulative, empirical, and situational premises were four significant types of cognitive form. Fears, hopes, and commitment were three important forms of affective expression of practical arguments.

To return to the main research task (i.e., the epistemic nature of teachers’ practical arguments), I found that the grounds and warrants (i.e., contextual grounds and epistemic conditions of practice) can help in obtaining more insight into the main task. Thus, in the next chapter, I will analyze these two elements in order to describe the nature of teachers’ practical reasoning.
5 Findings: the nature of teachers’ reasoning

Chapter 4 dealt with the first main research question, i.e., to examine the structure of teachers’ reasoning. The structure of teachers’ reasoning was found to be conceptualized within a practical argument having six significant elements: knowledge claim, grounds for justifying a knowledge claim, epistemic conditions for warranting the grounds in relation to knowledge claim, personal pedagogical belief systems, “but-pedagogy” rebuttal, and backing. In this chapter, I will examine the second research question: What is the nature of teachers’ reasoning? As mentioned, I found that of the elements of teachers’ practical arguments, the contextual grounds and the epistemic conditions of practice give more insight into the nature of teachers’ reasoning. Thus, I examine the second research question by analyzing the data related to the contextual grounds and the epistemic conditions of practice by addressing the following sub-questions:

1. What types of grounds did the teachers’ present for supporting their knowledge claims?
2. What types of epistemic conditions of practice did the teachers rely on for relating their grounds to their knowledge claims?
3. What did the warrants have to say about the epistemic status of teachers’ practical knowledge?

5.1 Contextual grounds

As mentioned in chapter 4, the grounds were the contextual justifications that the teachers relied on to sustain their knowledge claims (i.e., practical knowledge). There were three significant contexts in which the teachers’ justifications or grounds were rooted:

- The practice of teaching as a professional context.
- The teaching classroom as a situational context.
- The voice of the teacher as personal context.

5.1.1 Professional context

The teachers frequently relied on the “pedagogical character” of teaching to represent a particular context in which they needed to provide a sound teaching-studying-learning environment. From this point of view, the following
premises can be considered in order to illustrate what it means to believe that the teachers relied on teaching as a professional context:

a) In a teaching context, teachers work with students to help them learn;
b) One of the main tools for enhancing the learning abilities of students is to apply different pedagogical principles and rules;
c) Pedagogical principles and rules are necessary for teaching and for turning it into a professional entity (i.e., in order to teach one must know relevant pedagogies) and;
d) The teachers’ actions can be justified if they meet with pedagogical standards in order to enhance the quality of student learning.

Thus, the teachers justified their practical knowledge on the grounds that they carried out their professional duties and obligations, i.e., they acted based on pedagogical rules and principles to improve the quality of student learning. Findings indicated that teachers frequently pointed out that the purpose of their actions was to establish a good and suitable “learning environment.” They wanted to do something that could help them conduct their classrooms activities smoothly. As one significant category representing the context of teaching as a contextual ground, the pedagogical character of teaching was reflected in the teachers’ practical arguments in two distinct ways: “initiating pedagogies” and “preventing pedagogies.”

5.1.1.1 Initiating pedagogies

The first important area of professional contextual grounds was found to be related to the pedagogical practices that the teachers “initiated” and “accomplished” in order to foster the learning capacity of the students. In this way, even though teaching situations were running in a normal way, the teachers still wanted to improve the learning atmosphere in their classrooms. The initiating pedagogies aimed at different intentions, including following cases:

- Fostering the higher order thinking skills in students.
- Fostering the learning orientations of students.
- Improving active learning engagement in the classroom.
- Nurturing the character of the students.

Fostering the higher order thinking skills of students: As a significant base for their action, teachers tried to help students improve higher order thinking skills in a cognitive framework. This included strategies that could enable students to find reasons for their learning tasks and thus to judge and evaluate them; to think rationally and ask logical and sensible questions in the classroom; to answer the questions with evidence and good reasons; to enhance
their thinking processes; and to construct knowledge on their own. From this point of view, improving higher order thinking skills was conceived as a valuable task, and thus teachers should provide an instructional environment such that students’ important skills in this category would be fostered:

(Q: You asked the students to analyze and make a logical report on the movie when they watched it; could you please explain more about it if the students really can provide a sensible report on movie?) Some of them can do it and with some is very, very latent, but I think to be able to do such a task also deals with language skills; some of them, I think, do not have sufficient language skills to get these ideas across. They might have some ideas, they might be thinking about them, but I mean this is not the first time they have been exposed to the idea; they have been exposed to it gradually where they have had to substantiate and give reasons for answers; because I think a lot of the students I saw used to provide the answers without having any form of motivation as to why they are giving such answers. And what I have tried to do in school was to get them to have some sorts of reasoning behind what they are doing and thinking; it is an important skill (T1, 9 years experience).

Whether the teachers could realize this task, they claimed that they took a particular action on the basis of its helping to foster the higher order thinking skills of the students.

Fostering the learning orientations of students: In many of their practical arguments, the teachers stated that they followed a particular course of action because they intended to help the students strengthen their ways of learning. Improving meta-cognitive skills in learning (i.e., learn how to learn), and improving social skills in interaction with others were two significant examples of the teachers’ intentions for fostering the learning orientations of the students. On the one hand, in the former case, the main idea was to encourage the students and to provide a learning environment such that the students could initiate learning tasks; to persuade solving problems in different ways if the students kept to one particular solution (problem-solving skill); and to relate their existing knowledge of the lessons to the previous knowledge in order to develop their cognitive structure more deeply:

(Q: When you divided students to work in groups, you no longer interfered with their activities; specifically you did not give explanations to some students who were laughing and moving around classroom too much, Why?) Well!! As a teacher, I sometimes need to take a kind of pedagogical risk and provide an instructional setting in which pupils can freely talk, discuss, and move around the classroom, and even misbehave a little. This, I believe, can motivate students to initiate learning tasks on their own. I cannot always keep them in the same fixed structure; they should be encouraged to go behind the structure and improve their
learning skills in divergent ways. And, of course, I expect some sorts of drains in this situation (T2, 4 years experience).

On the other hand, in the latter case (social skills improvement), the teachers’ intentions were found to revolve around the help they could provide students to exchange knowledge (e.g., by group-work strategy); the insight the students could gain into the lessons and learning materials through communication with classmates; and the students’ ability to be able to express themselves freely in front of others:

(Q: What was the idea behind the work-group strategy in the math lesson?) In the work groups, they can communicate and they sometimes might know where the problems are, and they understand it when the others make mistakes or also they explain how they have learned a task. It is also very effective in helping students to learn how to cooperate with other classmates in solving problems and other important issues. Because if one member of a group does not know how to do an exercise, then the others need to explain how they did the exercise until they got the right answers (T4, 10 years experience).

Improving active engagement in the classroom: In this area of concern, the teachers indicated the importance of encouraging and confirming students to participate in the classroom activities (e.g., answering the teacher’s questions or asking relevant questions); keeping the learning motivation alive; accommodating individual differences (e.g., designing more challenging learning tasks for capable and gifted students, and normal tasks for other students); and encouraging the passive or less-motivated students to be more engagement in classroom learning activities. The following example shows how active engagement represents the “initiating character” of the teachers’ pedagogy. The teacher has decided to start and “accomplish” a risky action (asking more questions may interrupt the classroom flow) in order to enhance the learning engagement of students:

…even though it sometimes might interrupt the flow of my teaching, I try to call on students to answer my questions many times in a single lesson because it provides a good means for them to engage in and to think about the concepts in the lesson. I know this encourages most of the students to take the risk to answer my question or ask their questions (T2, 4 years experience).

The data indicated that active engagement was of the most significant in the initiating pedagogies that teachers relied on to justify the goodness of their practical knowledge. Teachers supposed that through active engagement, they would be able to accomplish many other intentions that they had for the
Findings: the nature of teachers’ reasoning

students (e.g., such as enhance social and problem-solving skills by active engagement in learning tasks).

*Nurturing the character of students:* Along with the academic and learning-based intentions that the teachers expressed in their practical arguments, they argued that nurturing the personal character of students is important to consider in the classroom. Here, the teachers’ practical arguments aimed at cultivating the idea in (e.g., a particular persona) the students by which they could grasp ideal behavioral norms for interacting with others in different social contexts, including the classroom and society as a whole. At the classroom level, the teachers justified their practical knowledge on the grounds that their associated actions could teach students to learn how to respect, be fair, cooperate, be polite, and take turns in classroom activities vis-à-vis their classmates:

(Q: So, based on your beliefs teaching is not just transmitting the knowledge and information in textbooks; could you explain more about it?) One of the things that I have told the parents in this classroom is that I want to focus more on getting the students to behave well, to be polite, to be empathetic, to be friendly, and, and nice to each other, before I start working with academics. I have told them if I need to sit the whole day and talk about how you talk to your classmates, then I will do it. And, you know, we can work with the academics easier if the students have the basic skills. But, if they do not have the basic skills what I see as basic human skills, then it is impossible to work. If there is somebody all pushing and puking, and you know, using put downs, and everything, how is a rest of group go to be work? Because, they are either constantly worrying that they are going to be the next target, or they are worrying whether they will be able work with this person (T6, 17 years experience).

At the social level, the teachers argued that their actions and supporting knowledge were good, since they could teach students to learn how to cope with their social problems, to participate in social events (e.g., how to attend a concert), to be ready for the future by shouldering social responsibilities (e.g., career), and to be tolerant of others in social encounters:

(Q: There are some ideas that say students, specifically the younger ones, should not be given very much homework; instead most of exercises should be done in class and at the school. How do you think about your strategy of giving the students a lot of homework?) I do not think that it is a healthy thing not to give students homework. Because, being transparent, we are preparing them first of all for junior high school, for college, for university, and for life. What kind of job you are going to get in the future needs some sort of preparation that has to be taught in the schools. For example, if you want to be a teacher, you always have some job to be done at home. If the students do not get into working mood right now,
then they cannot have that working savvy when one day they become adults (T3, 9 years experience).

From this point of view, teachers conceived of classroom life as a virtual community and a bridge to real society, and students need to practice the necessary behavioral norms in order to live in society. Therefore, from a practical argument point of view, any kind of action and belief was supposed to be good and reasonable in light of accomplishing and nurturing the intended ideal student character and persona pictured in the minds of teachers.

5.1.1.2 Preventing pedagogies

Pedagogical grounds, as mentioned earlier, had three emotional form of expression: fears, hopes, and feeling of being committed to professional responsibilities. The data revealed that most of the preventing pedagogies were expressed in the form of “fear” of some undesirable events that might happen in the classroom. Accordingly, teachers assumed that in the professional teaching context (e.g., the moments for making decisions) there would be obstacles and dilemmas to interrupt the process of teaching-studying-learning. Because these dilemmas affect the function of both teachers and students; thus, there should be appropriate and practical actions for resolving them. This part of teachers’ practice was related to what I call “preventing pedagogies,” i.e., the kinds of pedagogy that deal with tight spots in the classroom in order to prevent unpleasant and unwanted events. From the perspective of the practical argument, the aspect of the teachers’ actions and knowledge that deals with easing problems and dilemmas in the classroom is considered to be good, or at least necessary. Preventing pedagogies were found to address the following examples:

- Fear about managerial smoothness in the classroom,
- Fear about right fulfillment of learning tasks and,
- Fear about negative affective reactions of students.

_Fear about managerial smoothness in the classroom:_ The fundamental intention underlying this kind of pedagogy was to prevent “education disruption” while teaching. Teachers pointed out that they have classrooms that include many students with different characteristics, and if there is any interruption in instruction, then it causes a muddled situation wherein students may not be able to maintain the momentum of the lesson; thus they lose their concentration. The data suggested that the teachers had two distinct types of managerial concerns while teaching. One was to prevent misbehaving. The teachers said that they had to control and deal with the students who most often dis-
rupt the whole class, fight, and tease the other students. In this case, there were a few students known to be the misbehaving ones about whom the teachers had stereotyped views and thus these students were treated differently:

(Q: In the first class, you asked one of the students to sit in a corner separated from other classmates and do his tasks there, why did you do so? What was the reason?) The reason was that he was always disturbing the class. I already told him several times, if you do not sit quietly and nicely, I will send you to the back of the classroom. He did not behave well and was disturbing the others, and you saw that when he went to the back, there was not any problem, and he did not make any complaint about it.

(Probing question): Do you think when he goes to the back of the class and sits alone, he still will have his exercises done or learned? The first thing is that when he is alone, he is not disturbing the others, and the second is that because those students are around him, he has something to do all the time: going around, sitting with and between the others, talking to them, and teasing the other students. But when he is alone, he does not tease the others, he also has his exercise done (T4, 10 years experience).

The second type of managerial concern was the desire to establish discipline and order in the classroom while teaching. Here, the teachers were primarily concerned about the punitive framework of their teaching; they assumed that many of their pedagogical actions and the learning activities undertaken by the students should be done in order:

… I believe in some rules in the class. If you want to use a work-group strategy, for example, and you do not have rules you cannot do that. I do believe in guiding and managing things in this case, such as they should carry out their responsibilities within the group and not interfere with other groups. Also each group needs to have one student as the leader and one who should report, and when they report, the other groups should listen and show respect. I do not let the students do just anything when we are doing a lesson in the group. There should be good order and discipline. Otherwise, we would fail to achieve our learning goals. Also, you sometimes have to consider time limits and tell students to shut up if they break the rules and suspend them. You cannot just say let’s go. It needs quite a lot of discipline. But the students should also have time and opportunities to talk. I am actually quite a disciplinarian (T5, 15 years experience).

In this case, there was no particular student who was misbehaving; thus the disciplinary rules were effective for all of the students during the teaching. The other rules, such as turn-taking (e.g., in speaking and asking questions), asking questions at the right time and not jumping into the teachers’ discus-
sion (e.g., asking question at the end of lesson), coming to class on time, and being quiet and polite while others talk (i.e., teacher and students) were found to be related to the teachers’ disciplinary rules.

*Fear about right fulfillment of learning tasks:* The second type of preventing pedagogies was teachers’ fears about whether the students performed learning activities in the right ways. The data suggested that the teachers assumed that one part of their job was to deal with students’ academic mistakes; thus, there should be appropriate actions for preventing these mistakes. Teachers explained that they took a particular action because they wanted to make sure that students understood the lessons in the right way; they wished to inform students of their mistakes and thus prevent any misunderstanding in the learning of academic concepts:

(Q: Why you did mostly use frontal strategy, I mean standing in front of the class and talk to the students instead of using, for example, work-groups?) I like to use the work-groups-work method as well, but I believe that in this method you may waste time because most of the time I see students would involve in talking and doing funny things, and thus they may not do their work. More importantly, many times in a group, they pretend that they know things and do tasks in the right way, but it is not really true, and they make many mistakes in understanding the lesson.

As a main strategy, I do not believe in work-groups because it does not work for me in achieving my intentions in terms of the students (T2, 4 years experience).

There was another fear about accomplishment of learning tasks. The teachers wanted to make sure that less active students were also encouraged to participate in the learning tasks. The teachers wanted to be aware of how these passive students performed their learning activities, and thereby make sure that students accomplished their learning tasks. In order to fulfill this intention, the teachers tried to call on these students to participate in the classroom activities (e.g., by asking them questions):

…and general purpose of asking questions of certain students is basically to engage them in the lesson, because a lot of them really won’t interact. I want to prod them to interact. And for me the way for proding them is to ask questions specifically of passive students. I find that, a lot of the time, students put up their hands to ask and even to answer a question, then a lot of the time I ignore them, and I say, Ok! You already had an opportunity. So I try to involve the other students who just sit there like sponges and are not engaged in the class activities, and they just want to sit in the whole time instead of responding to the questions or being active in the classroom. So the idea about asking probing questions of students who do not generally answer questions and students who generally do ask questions is very important. And as I said, I usually work according to the system when it comes to questions that need to be asked or questions that need to be an-
answered. So I try to give everyone an opportunity to answer at least one question even when it comes to homework that needs to be done (T3, 9 years experience).

The data suggested that there was a difference between teachers’ intentions for improving active engagement and their intentions for preventing students from passivity. In the former, the existing learning engagement was supposed to be good enough, but teachers still wanted to improve it, whereas in the latter some students were seen to be passive; thus, the teachers’ intention was to provide a means to activate them. The aim of the former was to enrich the existing learning environment, which was sufficiently normal, and promote its quality; the aim of the latter was to make the inadequate learning environment better. The language of expression in the first case is “passion” whereas the language of expression in the second is “fear.”

Fear about negative affective reactions of students: Another theme running through teachers’ practical arguments occurred when teachers justified their actions on the basis of the role these action can play in preventing negative emotional interactions in the classroom between students and teachers on the one hand and between students themselves on the other hand. The most prevalent example was found to be related to what the teachers called “misjudging.” One of the teachers, for example, stated that “he gave permission and opportunity to students to ask any question after teaching during the break, because he had such belief that if one student comes many times to the teacher and ask questions, then the others may think that he/she is kind of a stupid student.” Thus, if these students came to ask questions after the lessons, then there would be no negative views or judgments of them. In justifying this argument, the teachers believed that some students feared asking or answering questions or doing other learning tasks in class because of these misjudgments they had already experienced (e.g., being laughed at by other students). It seems, in this case, that actual fear is expressed by students, but this fear was later transferred to the teachers’ pedagogical decisions. Another significant example of teachers’ fear of negative reactions was when the teachers feared being the target of students’ negative emotions. The teachers said they would avoid any action that caused a negative emotional reaction from students toward teachers. For example, they tried to avoid “criticizing the students or pressing them to answer questions in front of classmates,” since the students may become irritated and thus form a vague and negative picture about teachers and their pedagogical activities:

…and If the students do not like to read in class, then they do not have to do it. And I think the same thing can apply to questioning them in class. I try to encourage students as much as possible to be active and answer the question in class instead of forcing them, and try to explain why they need to answer and be active in
the classroom. If I try to force the students in learning activities, then they say, oh, this teacher doesn’t know how to treat with us. In the longer time, they might have a negative attitude toward me and this may hurt our friendship relationships in the class. So, I try to be like a friend for the students and encourage them in doing learning activities instead of using force (T3, 10 years experience).

These two examples of teachers’ fears about emotional prudence show that the practice of teaching is not only bound up with cognitive and academic issues. It is also influenced by emotional incidents in the classroom in different ways. A balanced and good learning environment should also be outfitted by positive emotional actions by teachers that end up with positive emotional reactions from the students. In other words, teachers need to improve their emotional pedagogies in order to balance the cognitive and affective aspects in the process of teaching-studying-learning.

To return to the first category of contextual grounds, I would like to point out that actions and beliefs associated with both initiating and preventing pedagogies are considered to be a fundamental part of teachers’ pedagogical obligations and turn teaching into a particular context. Preventing pedagogies differ from initiating pedagogies in the basic intention that lies behind each. Preventing pedagogies are “risk-averse and associated with different senses of urgency...teachers may feel a greater sense of urgency to avoid those things they fear than to accomplish things they hope for” (Kennedy, 2004, p. 15). Thus, the primarily intention is to maintain the existing learning environment in such a way that nothing challenging happens. Initiating pedagogies however is risk-taking, and teachers wanted to enrich the quality of the existing learning environment, even though they might face challenges. The main intention of this category is to provide a context in which students can actualize their potentials. Preventing pedagogies are applied to avoid losses or at least achieve some benefits by keeping the current situations, whereas initiating pedagogies are carried out to achieve more benefits. In the teaching context, preventing and initiating pedagogies are not isolated from each other, but intertwined: realizing the intentions embedded in preventing pedagogies may be considered the pedagogical basis for moving toward initiating pedagogies and realizing their associated intentions. From the point of view of practical argument, both initiating and preventing pedagogies are important in providing a healthy environment for students to learn and be nurture. Thus, actions and beliefs associated with these pedagogies are justified, since they are in accordance with the professional and pedagogical contexts of teaching. Therefore, they are considered as the first category of contextual grounds.
5.1.2 Teaching classroom as a situational context

The second set of contextual grounds on which the teachers relied to justify their actions was the particularity of different encounters in the classroom. The data suggested that the particularity of events in different classroom situations was reflected in different interventions. These interventions were found to be external variables that could bring some constraints to the teachers’ pedagogical flexibility. In other words, each intervention could reflect a particular situation in which the teachers were able to act in particular ways. Two significant examples of grounds related to a situational context were what I call “hard” and “soft” interventions.

5.1.2.1 Hard interventions

Hard interventions were related to the general aspects of teaching. Variables such as time of teaching (e.g., morning or afternoon), size and location of the classroom, equipments in the classroom, and the number of the students in each classroom were found to be associated with hard interventions. These are called hard interventions because they are related to the physical and non-instructional aspects of teaching, which were found to be more exact, clear, specific, and consistent in their characteristics: each hard intervention was narrow in its focus (e.g., the size of a class as grounds for justification practice focuses on crowded or less-populated situations; in addition everybody probably has a clear picture of a highly populated or a less-populated classroom). For example, teachers justified their actions by how the number of students in each class limits their “pedagogical flexibility”:

(Q: How do you deal with students who don’t like to talk with you or don’t engage in the learning activities?) That is a hard question; I have a lot of students like that as well. They are students who never like to talk but they think; but they are still really good and know a lot of things. And also there are those who are not listening and also have difficulties in learning. And one problem with my class, which is a big class, is that I cannot always take individual students and talk face-to-face to them, and it is sad; for one lesson I have only one minute for one person: that is a problem (T1, 4 years experience).

The time of day also influenced the teachers’ pedagogical decisions. For example, in the case below an experienced teacher tells how the time of day is important for deciding what to do:

(Q: Why did you change the class setting in the middle of your teaching?) You have to know your students very well. Then you have to be prepared to change anything that might happen during the lessons. There are some changes during
teaching, for example, they don’t have the same mood during the day and at different hours, in the morning, early and late. In this case, because it was the last hour of teaching for today and they already seemed to be tired, I tried to make a little change so that they could still feel good. So you have to understand the situation and atmosphere (T5, 15 years experience).

5.1.2.2 Soft interventions

Soft interventions were another set of grounds related to situational context that teachers addressed in their practical arguments. Moreover, soft interventions are categorized under situational context since they were found to mediate (e.g., limit) the pedagogical decisions of teachers in particular situations in a given class. Variables such as the subject being taught and learner characteristics were found to be two important and most frequently stated soft variables in the teachers’ practical arguments. They are called soft interventions because they tend to be more diffuse, playful, and capable of dealing with various intentions: each soft intervention covers a wide area (e.g., learning capacity of pupils covers a wide range of interpretations, which are not clear-cut or exact in meanings).

Subject matter was the first soft intervention that the teachers used in their practical arguments as grounds for their actions. Teachers generally noted that various subject matters “differ” from each other specifically from the point of how to teach them. In other words, they generally justified their “instructional strategies” on the grounds that a strategy could be good based on the “curricular” structure of a given subject matter. Such an understanding is in accordance with the concept of pedagogical content knowledge and represented the fact that each particular content holds a “different pedagogical” bearing and calls for different pedagogical decisions and actions:

(Q: What is a good way to start a lesson so students get enough motivation?) I think it depends on the topic: sometimes it is a story that helps you have a good start; for example, I have started a history lesson with a story about a king just to get their attention. Sometimes, it is useful to ask a question; for example, today in science we started with a question: why do you have brain? And then they told me why they have their brains and what a brain is for, and then you start talking about the science of brain. So, I try to have different activities to start a lesson, depending on what subject I am going to teach (T6, 17 years experience).

Characteristics of learners were found to be another important soft variable that teachers used as grounds associated with a situational context. The data suggested that the teachers focused on the following issues in their attention to learners’ characteristics:
Findings: the nature of teachers’ reasoning

- Learning capacity of students,
- Learning orientations of students
- Behavioral norms of students
- The backgrounds of students

Learning capacity: For teachers, students differed in their abilities to “learn.” In a very specific interpretation, teachers implicitly or explicitly believed that some of the students are gifted or talented in learning activities (e.g., they could solve problems and engage in difficult learning tasks and thus needed more demanding and complicated tasks); some of the students were normal and had an average level of skill in learning activities; and some had learning problems. The teachers believed that they needed to establish a kind of pedagogical environment so that each particular student could engage in the learning tasks, thus deriving advantages from the pedagogical practice based on individual’s learning capacity:

(Q: What has stood out for you over the last two or three years?) Well! I think that the most important has been that I have not been able to do everything in the classroom and that I cannot teach every one personally at the same time. So I have started to conduct a work-group method. And then I learned that students can teach themselves quite well, too. I could not explain everything to everyone personally at the same time. I was worried about those students who had difficulties in learning, and there were so many of them. And the students who were very talented, I could not give them anything, if they just sat there and had nothing to do. What did they learn then? They learned nothing because as a teacher I had to give all my attention to the students who could not cope with the classroom situations (T5, 15 years experiences).

Learning orientations: Teachers stated that because students have different learning tactics and styles, they need to establish appropriate (e.g., effective) learning environment so that most of the students could work and learn. The following issues were found to be related to learning orientations of students: the concentration span of students, motivation level of the students, and task engagement.

The concentration span, which refers to how students listen and focus on a lesson while the teachers teach; some of the students were able to focus on the lesson well and thus could learn more quickly whereas others could lose concentration during the lesson and thus needed lessons to be repeated several times by the teachers. The motivation level of the students was different in different classes and in different subjects. Some of the students were eager to engage in learning activities but others were less motivated and needed more affirmation and encouragement. Some students were more independent
and engaged in learning tasks with less guidance from teachers, while there were others who were in need of help and guidance from a third party most of the time. Task engagement was another example reflecting the learning orientation of the students. According to the teachers, some of the students were active in classroom activities (e.g., asking or answering questions), while others were passive and quiet. The data suggested that the teachers most often focused on the two extremes of the learning orientation spectrum of the students. (e.g., they discussed about less motivated or more-motivated students as a basis for their pedagogical decisions).

**Behavioral norms:** The data suggested that the teachers saw different behavioral norms in their classrooms and thus tried to have appropriate courses of action for coping with each norm. The teachers usually said the students have very different behavioral norms, so they needed to be dealt quite differently:

(Q: How strict are you about the rules that you have regarding your students?) I think it also depends a lot on the class itself; you have different classes, different kinds of students in different classes, so with some classes you need to be stricter and with others not so strict (T1, 4 years experience).

There were three broad behavioral norms calling for different pedagogical decisions on the teachers’ side: misbehaving students, challenging students, and normal students.

Misbehaving students, the teachers consistently tried to respond with a “direct and straight” reaction to the students who misbehaved in order to prevent chaos in the classroom. Among misbehaving students there were two distinct norms: those whose misbehaviors were minor and those who misbehaved dramatically and had long records of misdeeds. For the former, the teachers had “preventative” strategies, while for the latter they had “compromising” strategies to handle the situations. In other words, for the first group, the teachers’ intention was to prevent the misbehaviors in front of the other students so the others wouldn’t learn; however, for the second group the teachers’ intention was only to lessen the extent and effect of the classroom misbehavior because they assumed that this group of the students would do something wrong anyway.

Challenging students, this group of students was found to be challenging because they had different academic demands (e.g., they usually wanted to answer the teachers’ questions, they criticized the methods of teaching and complained about what the teacher and other students usually did), and thus they needed to be treated differently. In these cases, the teachers tried to meet their demands without distracting from the normal classroom activities, thereby applying a kind of “balancing” strategy:
Findings: the nature of teachers’ reasoning

(Q: Why did you stop Mika (the student) from talking? Didn’t you think there would be negative consequence?) About him I know it doesn’t have negative effect, because it depends on the students. I have given Mika rewards many times and shown appreciation of his being active. But I sometimes need to stop him to say, Ok! It is someone else’s turn and you have to stop commenting. He has never been angry. But sometimes he says something like enggg..., meaning he was not allowed to say what he wanted to say. If let him, I would have to listen to Mika’s stories all the time (T1, 4 years experience).

Normal students, this group students was found to do their learning tasks regularly (i.e., they usually accomplished their task based on guidelines given by the teachers), to respect their classmates and teachers, and to cause less problems in the classroom. These students constituted the majority in each classroom and thus were considered the baseline for pedagogical decisions.

Students’ backgrounds: The last significant characteristic of learners that was important for teachers in their pedagogical decisions was the backgrounds of the students. The teachers pointed out that a student’s history is important to consider:

(Q: It seemed to me that with the “tribal group” game, you were trying to bring some sort of moral values to your teaching, and you focused on them a lot; could you please tell me more about this?) Well, it is because of the backgrounds and history of these students, because of the fact that, through the years, they have been a group that gets into fights; they are a group of students who cause problems for the teachers; they are students who cannot get along with each other; they have been flooding, and during the summer when I was thinking about ways and putting these things together and bringing these students together, I kept thinking about something to do to have fun: I cannot just preach, preach, preach. So it is a kind of cool thing to do (T6, 17 years experience).

I also found that other issues concerning students’ backgrounds were influential in pedagogical decisions made by teachers, such as what kind of family the students come from (e.g., whether the parents care about their children’s education); their cultural background (e.g., whether they are Finnish or have lived in another country); the degree of language fluency (e.g., whether they can read and write well); and their gender. The examples mentioned were the most frequently cited cases relating to students’ backgrounds emphasized by the teachers in their practical arguments as justification for supporting their actions and beliefs.

In general, regarding the situational context, I found that the described contingencies in teaching represented situations in which teachers were faced with “pedagogical possibilities” on the one hand and “situational restrictions” on the other hand. The ability to make decisions and to act in the area of
“pedagogical flexibility” was mainly related to the interaction between the possibilities and restrictions. This understanding shows that there is always “room” to act in order to cope with dilemmas in each restricted situation in a teaching context.

5.1.3 The voice of teachers as personal context

In many cases, the teacher was found to be “distinctive” in the making-meaning of the events in the classroom. One way of representing the particularity of teachers’ understanding was their personal professional experiences. Teachers stated that they had a great deal of experience regarding various important issues in their jobs; these included how to deal with different types of students, how to conduct various instructional strategies in different conditions, how to deal with managerial issues, and how to conduct the practice of teaching as a whole. These experiences were believed to help teachers improve their personal and situation-specific pedagogical capacities for teaching. Generally, teachers justified their practice with their experience:

(Q: How do you usually become certain about the goodness of your actions and beliefs in the work?) I learned my beliefs over the years. For example, students often like to talk, so I think there might be a point in that…. I don’t ask the other teachers to approve my actions. I look at my results; if something is wrong, it becomes clear in my work. I don’t ask other teachers because they have personal views that may not match my situation, and also we do not have time to reflect on things together (T5, 15 years experience).

Even though experience was found to be the source of such personal understanding, it seemed that the personal “opinions” of teachers per se had a great effect on how to develop meanings in their work. This part of the findings indicated that under many circumstances and even though teaching is potentially a communicative action, teachers as individuals have a “voice” in the process of professional development. The logic that underlines these types of justification was a self-referential argument, which, however, was rooted in experiential knowledge. In these cases, teachers frequently used the subject “I,” and thus saw themselves as the source of knowledge:

(Q: Who is a good teacher?) I do believe that a good teacher must be patient and thus hopeful about the little changes of minds, behaviors, and the other characteristics of the students. Many of my colleagues are always telling me, Oh, what are you doing in this class? You must be strict and tough in dealing with some of these students. But it is not really true; I am like a mom for these students, and I usually try to care about their worries, and let them go further, and I think and be-
lieve that such patience and being hopeful for a little improvement will end up with good things (T6, 17 years experience).

From what was mentioned through sections 5.1–5.1.3, I came to the conclusion that (1) the nature of teachers’ grounds for justifying their practical knowledge is contextual, and (2) these grounds are rooted in three different but intertwined contexts: the professional, the situational, and the personal. The first set of grounds shows that the profession of teaching is considered to be a specific context, demanding for particular courses of action because it is bound up with pedagogical obligations and competency: teachers need to apply different pedagogies with various functions and natures in order to meet professional obligations. The second set of grounds indicates that the teaching classroom is also a particular context because pedagogical decisions are situational in each classroom. The situational character of pedagogical decisions is restricted to the various interventions in each encounter in different classrooms. Teachers most often decide what to do based on interventions embedded in each situation. The third set of grounds suggests that each teacher has different experiences compared with others and thus perceives pedagogical obligations (in the first grounds) and situational intervention (in the second grounds) in different ways. Based on what has been mentioned, at the core of the professional context is placed “pedagogical commitment in order to enrich and improve the learning environment”; what makes a given classroom situational context is “the domination of some interventions and urgency of action upon them”; and what turns teacher into a personal context is “the authority of voice and perceiving” rooted in different life experiences. Table 5.1 shows the frequency and the percentages of the main subcategories occurring in the contextual grounds:

**Table 5.1** Distribution of contextual grounds based on the main subcategories.

<table>
<thead>
<tr>
<th>Contextual grounds</th>
<th>frequency</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard intervention</td>
<td>23</td>
<td>10</td>
</tr>
<tr>
<td>Soft intervention</td>
<td>52</td>
<td>22.6</td>
</tr>
<tr>
<td>Personal view of teacher</td>
<td>42</td>
<td>18.3</td>
</tr>
<tr>
<td>Preventing pedagogy</td>
<td>64</td>
<td>27.8</td>
</tr>
<tr>
<td>Initiative pedagogy</td>
<td>49</td>
<td>21.3</td>
</tr>
<tr>
<td>Total</td>
<td>230</td>
<td>100</td>
</tr>
</tbody>
</table>
The data indicate that in 49.1% of practical arguments, teachers have relied on professional context, including preventing and initiating pedagogies, in order to justify their practical knowledge; also preventing pedagogies with 27.8% had the highest rating in teachers’ practical arguments. From the data related to situational context (i.e., hard and soft interventions), teachers mostly used soft interventions, for example learners’ characteristics, to support their practical knowledge.

Even though I have classified the contextual grounds into three categories, it does not necessarily mean that each category precisely reflects a clear-cut concept isolated from the others. Instead, these contexts are related to each other in different ways and most of the time they overlap. Figure 5.1 shows overlapping relationship among mentioned the three contextual grounds.

![Figure 5.1](image)

**Figure 5.1** Relationships among the contextual grounds in teachers’ practical argument.

The figure illustrates that a central idea and responsibility, i.e., teaching-studying-learning, link three contextual grounds at a common point. In other words, in all of three contexts teachers want to act in light of teaching-studying-learning process, and this causes an overlapping relationship. On the one hand, the pedagogical obligations (i.e., the initiating and preventing pedagogies) for improving the learning environment as the main intention rooted in professional context “overlaps” and “influences” the intentions entrenched in the other two categories. On the other hand, according to various interventions in the situational context, and teachers’ voices in the per-
sonal context, teachers “filter in or filter out” the degree of pedagogical obligation, and thus change the nature and the function of pedagogical practice. In the situational context, for instance, teachers try to act on the urgency of the situation while still remaining committed to the pedagogical principles in order to improve and enrich the learning environment on the one side. The urgency of a situation and its associated interventions could change the type of pedagogical actions on the other side. For example, the pedagogical obligations for coping with the demands of a big and crowded classroom are different from what is required for a small and less populated classroom. There are also degrees of pedagogical commitment in the personal context when teachers see themselves as the source of decisions.

From a practical argument point of view teachers justified their practical knowledge on the grounds mentioned as illustrated below: they usually expressed that “I believe in a particular practical knowledge and take a particular action because”:

- It is based on my pedagogical obligations (i.e., preventing and initiating pedagogies) rooted in the professional context;
- It meets the demands of situational interventions in the classroom (i.e., hard and soft interventions) rooted in the situational context; and
- It accords with my experiences and understanding rooted in my personal context.

From the epistemological perspective of the present study, the grounds are one important element of teachers’ practical arguments. Grounds simply indicate that “what” evidence (i.e., the justification or reasons) that teachers provided to support their practical knowledge. There is another significant element that gives insight into “why” teachers used particular a ground or justification. This element is what I call the “epistemic conditions” of practice, which links the grounds to the practical knowledge. The next section analyzes the nature of this element in the span of the teachers’ practical argument.

### 5.2 Epistemic conditions of practice

As mentioned above, teachers relied on various intentions (e.g., intention related to the initiating pedagogy) in three broad contextual grounds for justifying their practical knowledge. The data suggested that there was an implicit or sometimes explicit “value” or “good” in these intentions. From the perspective of the present study, the “embedded value or good” in teachers’ practical arguments indicates the epistemic conditions of practice. In other
words, it revealed what epistemic conditions the teachers attached to each piece of practical knowledge claim or its associated practice so that it could become objectively believable by others. From this point of view, all intentions embedded in the professional, situational, and personal contexts were supposed to be relevant because they reflected one of these epistemic conditions. Two significant epistemic conditions (i.e., warrants) were found in teachers’ practical arguments: “morality” and “efficiency of action.”

5.2 Morality

One of the significant elements of the epistemic condition of good practice was the “moral value” of each intention embedded in teachers’ practical arguments. The findings indicated that the concept of “moral care,” including care for students was placed at the heart of morality. In other words, teachers tried to warrant their practical knowledge in light of taking care of students: very simply “does no harm.” The data revealed that the concept of moral care was reflected in the actions and beliefs corresponding to “fairness” toward the students, “respectfulness” of the students and, non-academic commitment to the students.

5.2.1 Fairness

Equality is a commonly agreed-upon principle in the life of a human being. In their practical arguments, teachers stated that their intentions were to treat all students so equally that everybody “feels good” in the classroom. Being fair was reflected both in the teachers’ pedagogical decisions as well as in their personal dealing with the students. In taking pedagogical decisions, teachers tried to apply rules of practice equally to all students. For example if there was a rule by which the students would be reward for certain actions, then the teachers tried to apply the rule to all in order to “prevent negative feeling” in the classroom. Moreover, on the occasions when the teachers realized that engaging in particular academic activity made the students feel happy and good, they wanted to provide as much equal opportunity as possible for all students to participate in those activities:

(Q: You usually ask questions and let student raise their hands and answer the questions; you let students all raise their hands and after a short time you call on one student to answer. Could you please tell me more about this?) First of all, I want to know who is willing to answer, and very often it is the same students who are always raising their hands. They are actually quite particular; let’s say, they observe; the students really observe who has been given the chance to answer. If I
call on one student too many times, then the others say, oh, he or she always gets to answer. And then I also try to notice whether some student has not raised her hand in a long time; then if suddenly I see she is raising her hand, I try to give her the chance to answer and try to encourage her. That is why I am observing all the time who has been raising her/his hands, and I try to allow as many as possible students to answer. Because I know they really have a good feeling about answering, even though their answers may not be totally correct. They enjoy the fact that I know, and having the chance to answer (T1, 4 years experience).

This is what I call the “moral manner” of teachers where along with focusing on the academic aspect and the outcome of the action, more importantly they reflect on the good feeling that the students have as the result of an action. In the example mentioned, the teacher’s intention was to share “joy” and “good feeling” with as many students as possible. The critical point here is that the result of the action (in this example, providing an opportunity to as many students as possible to answer the teacher’s question) does not necessarily bring about an academic outcome, let us say, “to bring about learning.” Instead, the teacher put emphasis on the “moral character” of her action when she said that “I know they have a good feeling about answering, even though their answers may not be totally correct.” From this point of view, the moral load of the action overweighs the learning outcome, even though the *prima facie* goal of a teacher’s practice would be to bring about learning.

Besides being fair in the pedagogical decisions vis-à-vis the students, teachers tried to have equitable personal communication and relationships with the students. For example, in having close relationships with the students, the teachers tried to be careful and a kind of friend by talking, walking, and eating with all of the students as much as possible. In general being fair in both pedagogical rules and in personal treatment of the students was found to go with the concept of “care,” since the main value attached to the intentions of this moral manner was “to make the students feel happy and prevent any negative feeling.”

### 5.2.1.2 Respectfulness

There were occasions when the teachers had different options about what actions to take. However they were deciding to act in a “manner” that not only cause no “harm” to the students, but also eased any existing harmful situations in the students’ academic and personal lives. This accords with the same notion proposed by Audi (2006) that “respectfulness is about obligations of manner…how we do what is obligatory as opposed to ... our obligations of matter” (p. 139). In the actions and beliefs associated with the ethics of respectfulness, the teachers were found to be patient about the conse-
quences of their practice; they tried to conduct the best possible practice in order to prevent “harm” to the students, though the process of action was quite different from the typical routines in the classroom, and its outcome was late and small. The reason for such actions was that the teachers assumed that the students would suffer harm if they were subjected to typical actions and routines:

(Q: Some teachers ask the students to leave the classroom if they misbehave, but I see you still let these kinds of students stay, like today, one student disrupted the teaching, and you just asked him to change his place. What is your idea dealing with such situations?) Generally, in this class students know my rules. I have stated the rules to students many times during our teaching. But sometimes it is natural that students just cannot keep quiet and behave normally at the primary levels. In these cases, I try to tell them that it is not good to behave in this way, and most of the time they accept and understand this. In this school, we have a rule that if students misbehave, we can send them to the headmaster. But I don’t believe this rule works out in the right way. Because students do not feel good about themselves if I ask them leave my classroom. I always must remember that I am the teacher, and educating children takes time, patience, and tolerance. So I try to be as patient as possible in these instances and not make hasty decisions (T3, 9 years experience).

The core value attached to the intentions of actions corresponding to respectfulness was the ethic “does no harm” the student or the prevention of harmful situations in the classroom. The assumption that lies behind this ethic was found to be that if the students suffer “harm” as a result of a teacher’s pedagogical actions, then they may no longer learn effectively, or improve their learning capacities.

5.2.1.3 Non-academic commitment

In many cases of my discussion with teachers, I found that they expressed the strong obligation to help students to cope their non-academic problems, i.e., the problems that were not directly related to the learning tasks of students, but they were significantly concerned the problems out of the classroom. There were two distinct sides in the teachers’ commitment to their students when they expressed their practical arguments in this form: first, educating or nurturing students; second, attending to personal problems of students. In the first case, in their arguments, the teachers acknowledged that “teaching is not only teaching,” i.e., transferring content and existing curricula to students, but is also about nurturing the whole character of students in order to become a good citizen in society. In other words, the teachers tried to show that “transferring the content” and “nurturing the character of students” are not two
isolated entities, rather they are inclusive. In section 5.1.1.1, I cited a teacher’s argument to explain sub-category “nurturing character of students” as a professional ground on which teachers relied to justify their actions. This example also shows that non-academic commitment as an “epistemic value” is implicit in this ground (nurturing character of students):

(Q: So, based on your beliefs teaching is not just transmitting the knowledge and information in textbooks; could you explain more about it?) One of the things that I have told the parents in this classroom is that I want to focus more on getting the students to behave well, to be polite, to be empathetic, to be friendly, and, and nice to each other, before I start working with academics. I have told them if I need to sit the whole day and talk about how you talk to your classmates, then I will do it. And, you know, we can work with the academics easier if the students have the basic skills. But, if they do not have the basic skills, what I see as basic human skills, then it is impossible to work. If there is somebody all pushing and puking, and you know, using put downs, and everything, how is a rest of group go to be work? Because, they are either constantly worrying that they are going to be the next target, or they are worrying whether they will be able work with this person (T6, 17 years experience).

In the second case, the teachers stated that different students have very particular problems at home or even when they are coming to school, and one as a teacher cannot ignore these problems, since these problems directly or indirectly affect the process of teaching-studying-learning. One important example of this understanding was that the teachers were found to reflect on the “mood” of learners and their family situations and the effects that these problems may have on the students’ learning. The teachers expressed a moral commitment to students in order to help them ease these problems:

I think it is very important that you as a teacher not only teach. Because you have to somehow listen to what the students have in their hearts, because they are not robots and the students who just listen and learn; they are human and they have worries and perhaps something is wrong at home and something is wrong in class and they cannot study in such a situation. So, I discussed a lot with social workers and nurses. As a teacher, you have to take care of the whole person, the inner and outer (T1, 4 years experience).

Therefore, my observation indicated that the corresponding actions and beliefs in cases related to the first epistemic condition of practice were conceived to be moral since, above all, the moral character of the teachers’ actions was important through being fair, show respect to students, and non-academic commitment toward them. The “good” embedded in this epistemic condition is, in the first place, to remove pain and bring about good feeling
for students, and then to bring about learning, which is not the final obligation of the action. By means of such moral care, the teachers generally wanted to accomplish something good or to avoid something harmful vis-à-vis the students.

5.2.2 Efficiency of action

Effective endeavor in life can produce positive benefits. In the practice of teaching, the benefit of an effective action would be, among other things, to improve the learning capacity of students by engaging them in understanding major concepts, assumptions, debates, processes of inquiry, and ways of knowing that are central to a given level and discipline. In most of their practical arguments, the teachers warranted their practical knowledge by arguing that their actions were “effective” in “bringing about learning” in different ways. The effectiveness of action, however, was found to be presented in two different manners in the teachers’ practical arguments: “authentic” efficiency and “naïve” efficiency.

5.2.2.1 Authentic efficiency

As a significant part of their concerns, efficiency of action in bringing about pragmatic results, i.e., learning, was prima facie important for the teachers. Intentions related to this type of epistemic condition of practice warranted many of the strategies, methods, pedagogies, and practical knowledge that teachers applied in order to inform their actions. In accomplishing such an important intention, i.e., being an effective teacher in improving the learning capacity of students, teachers, I found were often alert to consider the complexities of the teaching context in making their pedagogical decisions. Thus, according to the data, the teachers’ arguments about the efficiency of action were authentic because the intentions corresponding to these arguments were consistent with what I call “caring pedagogy.” The concept of caring pedagogy was reflected in the following principles of “pedagogical inclusion” and “pedagogical accommodation”.

Pedagogical inclusion: Findings indicated that the teachers were attentive to differences between the students when they made the pedagogical decisions. For teachers, an effective teaching activity must be responsive to the learning demands of the students with a variety of learning capabilities and interests. In many practical arguments, the teachers wanted to ensure that their practice provide each student with a solid opportunity to learn. However, the teachers believed that without internal excellence of teaching activi-
ties, they may fail to fulfill their intentions in sound way. From this perspective, the excellence of teaching practice was that teachers must care, consider, and understand the differences in the students’ approaches to learning and their different backgrounds. Thus, I found that the teachers conducted a variety of pedagogical activities and created instructional opportunities that were adapted to students with diverse backgrounds and exceptionalities:

(Q: How do you design different strategies for teaching, and what particular strategy do you think is the most effective in your classroom?) For me, it does not matter which subject I’m teaching. When I spoke to you last time, I mentioned that the students learn in different ways: some learn visually, some learn in the way I have talked about today. But in the previous lesson, what I did is that we worked on the students’ visual aspects and I had them look at pictures, for example, and then draw some kind of correlation between the pictures and the content. So that would be one way of doing things. And some students, we said, learn auditorily through listening and such. So I think that we have visual learners and we have audible learners as well. And most of the time I know the capabilities of the students in the class, and I know which methods work best for them, and then I generally tend to exploit those methods. For instance, if there are students who do not understand, for example I have one in my class who has great difficulty in understanding some of the concepts, I work with them separately in another occasion, and the concepts are taught to them there. This is why I said, “If I see they do not understand a specific aspect of math or language, then they need to be in special sessions” (T3, 9 years experience).

As an area of concern, therefore, providing equal and positive learning opportunities for all students, whatever their capabilities, was one characteristic of authentic efficiency in practice. This notion differs from the idea of fairness in moral care: fairness addresses equal treatment and dealing with the students in all matters, both inside and outside classroom life, in order to prevent “harmful feelings” in the students; pedagogical inclusion, however, is based on tenet “no child pedagogically left unattended”, which aims at engaging all the students in learning opportunities in order to improve their “intellectual” lives. Nevertheless, at the core of both, the notion of “care” is emphasized.

**Pedagogical accommodation:** The other characteristic associated with the concept of “caring pedagogy” was the flexibility that teachers showed in various pedagogical decisions (e.g., instructional strategies) of their practice. They stressed that the teaching context is uncertain and thus the fixed and universal pedagogies may not work in all situations. In these cases, they tried to “adapt” their internal and their already-established pedagogical knowledge to accommodate the complexity and uncertainty of the classroom situations in such a way that their practice would be effective in fulfilling learning goals. In this way, the teachers acknowledged changing or remedying their
practice to fit the realities of the teaching context in order to improve learning environment:

...sometimes, I have started a lesson with a work-group method, and it doesn’t work, you know, because it becomes a kind of chaos. And when I see they are not learning, I don’t have any problem in saying “stop,” this does not work; now we are going to change this. I think that one of the good things in the classroom is that the students know that I don’t have any difficulty admitting that I made a huge mistake. Moreover, I think that there are differences, for example, between how I would teach history at the junior high level; I would probably do it in a hugely different way. Because history is about things that I feel could be exciting whatever level you are on. But I think that, for example I would teach the Finnish language in a different way at the junior high level and at the high school level than I do here. So I also think that teaching is connected to the age group you are working with, because you have to find what these students are capable of doing at this age. And what are they focusing on and do their minds work at this level? So you have to adjust your teaching to the age level as well, not just on what they are supposed to know (T6, 17 years experience).

From the elements of the practical argument, the concept of “but–pedagogy” was found to reflect the significance of the teachers’ pedagogical accommodation and their flexibility in conducting their practice. For example, I found that teachers frequently shifted from one teaching strategy of to another in order to cope with the demands of a new situation. They also adapted different learning materials according to the academic background of students.

The data suggested that there was a different between pedagogical inclusion and pedagogical accommodation. In the former case, the teachers’ pedagogical decisions were primarily based on the differences in the students’ learning characteristics (e.g., learning interests and orientations) and their backgrounds (e.g., family and language). In other words, the main object was students to be considered as the basis for action. Thus, the teachers conducted a kind of “pedagogical diversity” in order to meet these differences. In the later case, however, the teachers’ actions were based on the “situatedness” of the teaching context. Here, in addition to students, there were many other variables (e.g., subject matter, time, size of class) that the teachers reflected on to make decisions. The teachers; thus, carried out their activities based on “pedagogical flexibility” to accommodate the situational character of teaching context.

According to my interpretation, by drawing on the ideas of “pedagogical inclusion” and “pedagogical accommodation,” teachers were attentive to two sides of an effective practice: what part of their practice “worked” and how; and what part of their practice “did not work” and why. The former idea indicates that all pedagogical practices should aim at enhancing the “learning
Findings: the nature of teachers’ reasoning

The latter implies that teachers should always evaluate the outcomes of their practice in terms of what was effective and what was not in different situations and for different students, and adjust, i.e., adapt their pedagogical practice accordingly. By caring about this obligation, teachers were involved in what I called “caring pedagogy,” and thus their argument regarding effective action turned out to be an authentic argument. However, the data suggested that not all of the teachers’ practical arguments regarding effectiveness of action were authentic.

5.2.2.2 Naïve efficiency

Along with moral ethos and authentic efficiency, teachers sometimes warranted their practical knowledge claims in light of the effect they had in temporarily solving and coping with “conflicting and complex professional situations” (e.g., how to deal with misbehaving kids in the classroom). In other words, teachers did (or believed) something that was effective in bringing about their intended results here and now. The core intention of naïve efficiency was what I call “regulating pedagogy.” This pedagogy was supposed to be effective in controlling the challenging situations of classroom. The data suggested that there were two basic ideas embedded in regulating pedagogy: the “what works” notion and “pedagogical assimilation.”

“What works” notion: In this type of warrant, teachers mainly insisted on the notion of “what works.” The stance implies what teachers had been able to put into practice – in a way that produced at least enough of the intended results. Teachers may then may have continued to employ “what works” methods and materials with negligible attention to “what did not work” for a certain significant percentage of their students. In this way, they failed to care about the differences between students, changes in students over time, and other such important variables that were reflected on in the authentic efficiency and moral ethos. In the following case, the teacher explains why she ignores the students’ wrong answers to her questions:

…but, I think that the key thing is that they are trying; they are willing to raise their hands and take the risk. Because I think that the biggest risk is what they do when they want to answer; they might say What if I give the wrong answer? What is going to be the teacher’s reaction during the rest of the class? And, so yes, I think that for me it is better to ignore the wrong answer than to point out to the students that “your answer was wrong.” If I point out a student’s wrong answers, then the others might not raise their hands to answer.

(Probing question: Do you think if you totally ignore the wrong answer for a long time, then the students might get used to the wrong answer?) Yes it is true, I haven’t really thought about this (T6, 17 years experience).
In this case, we can see how teachers may fail to reflect on important aspects of their pedagogical decisions. In the data, I also found that this failing was connected to what I call “pedagogical assimilation.” Many times teachers were found simply to assimilate the multifaceted character of teaching situations and go into their default rules, actions and presuppositions.

**Pedagogical assimilation:** In the cases associated to pedagogical assimilation, the teachers tried to incorporate the complexities and uncertainties of the classroom into their already-established pedagogy in order to regulate the existing learning environment. In other words, the teachers failed to reflect on the possible deficiency of their established pedagogy so that they could change or correct it according to the tentative realities of the teaching context. Instead, their actions were found to be like a “frame” to which everyone should fit. Dunne (2005) calls such actions a “Procrustean application of the general rule (Procrustes was the character in Greek mythology who stretched or shortened people to make them fit the bed predesigned for their captivity)” (p. 376). In his argument, T3 (9 years experiences) asserted that he had a general rule of practice concerning “how students ask questions while he is teaching”. According to his rule, the students were not allowed to ask questions while he was teaching. Instead, they should leave their questions until the end the lesson; as he put it, students needed to ask their questions at the point he called the “Questions Park.” The teacher believed that this rule was effective in preventing students from asking “untimely or premature” questions. In this rationalization, the teacher ignored the other shortcomings of the action in that he failed to reflect whether a “Question Park” fit all students’ needs. For example, what if a student had a meaningful question but forgot about it by the time for the “Question Park”? What if there was not enough time to answer all the questions at the end of the lesson?

In my observation, the core of naïve efficiency in the teachers’ practical arguments was “teaching materials” without concern about the “learning outcomes”; or was aimed at “managing and regulating conflicting occasions” (e.g., how to deal with misbehaviors) without care about the “affective consequences” of an action. In the case of the “Questions Park” in T3’s argument, for example, the teacher was concerned about finishing the lesson on time, due to possible limitations he faced; how well the students were able to engage in discussion with teacher and grasp the lesson were ignored. As for as in the cases such as dealing with misbehaving students (e.g., ask a student to leave classroom) teachers too often are concerned about managing the whole classroom, and they may not consider possible permanent negative consequences of an action used to deal with students. In the cases corresponding to regulating pedagogies, the caring energy and motives of the teachers shifted the direction from the students to other issues for two basic
reasons: the urgency of the situation and the rejection of “care” by the students (e.g., they continued misbehaviors and ignored the rules of practice). The findings, therefore, indicated that the notions of moral care, caring pedagogy, and “regulating pedagogy” are the core values embedded in morality, authentic efficiency, and naïve efficiency respectively. The rate of each epistemically significant condition of practice is illustrated in Table 5.2.

Table 5.2 The distribution of categories of epistemic conditions of practice.

<table>
<thead>
<tr>
<th>Epistemic conditions</th>
<th>frequency</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morality (moral care)</td>
<td>41</td>
<td>17.8</td>
</tr>
<tr>
<td>Authentic efficiency (caring pedagogy)</td>
<td>129</td>
<td>56.1</td>
</tr>
<tr>
<td>Naïve efficiency (regulating pedagogy)</td>
<td>60</td>
<td>26.1</td>
</tr>
<tr>
<td>Total</td>
<td>230</td>
<td>100</td>
</tr>
</tbody>
</table>

As illustrated, the data suggest that the majority (56.1%) of teachers’ practical arguments are in accordance with caring pedagogies. Moral care as one important epistemic condition has the lowest rate in teachers’ practical arguments (17.8 %). This part of the findings indicates that the main concern of teachers was improving learning capacities of the students. However for various reasons and because of complexity of the teaching context (e.g., different situations, different students), this intention is replaced with other “motivational drives” embedded in morality and naïve efficiency.

According to Figure 5.2, in the cases corresponding to caring pedagogy (authentic efficiency), the prima facie intention in the majority of teachers’ practice was to foster student learning in different ways and by means of the right pedagogical principles, i.e., pedagogical inclusion to fulfill the “no child pedagogically left unattended” good, “and pedagogical accommodation to meet the situatedness of the teaching context in favor of students. The findings, however, indicate that this intention was changed in the practical arguments corresponding to “moral care” and are “regulating pedagogy.” On the one hand, in moral care meta-academic obligations, i.e., the values of “do not harm” students and “nurture” were placed at a higher level of epistemic superiority, since these values were considered more important than accomplishing “academic tasks,” e.g., engaging students in learning activities. The teachers assumed that values such as “do not harm students,” improving their moral character, and respecting their dignity overrode the intellectual outcomes. In other words, the teachers should have used the effective pedagogies in order to enhance the academic and school lives of the students as a prima facie task; but if there were a hard situation wherein other obligations
e.g., showing respect for or being fair) outweigh accomplishing academic tasks, then the teachers “ought to” carry out the action reflecting moral care in the first place. In situations and practical arguments for which teachers used moral care to warrant their practical knowledge, moral values were considered to be “superior epistemic conditions,” and rules and principles corresponding to caring pedagogy were conceived as “initial epistemic conditions” of good practice. The former was found to be the “final” intention embedded in the teachers’ practical arguments (e.g., teachers ought to accomplish an action in order not to harm the students); the latter was temporary: it was ignored if a stronger obligation related to moral care was felt in a given situation (e.g., the teachers would ignore asking questions of students in front of others if asking questions would somehow cause harm students).

On the other hand, in the practical arguments associated with “regulating pedagogy,” teachers ignored “care” of students in different ways. In these cases, teachers’ intention to manage classroom situations and thus to regulate teaching practice in ways that met the demands of managing the situations took precedence over enriching the learning situations and showing care for students. Even though teachers stated that their prima facie intentions were to help students to improve their learning ability, they failed to fulfill this purpose because, implicitly or explicitly, their hopeful intentions were replaced by other intentions that mainly addressed “teaching” and what good was for the teachers instead of addressing learning and what good was for the students. “Regulating pedagogy” was thus found to be a “dominant epistemic
condition” in comparison to “caring pedagogy” because the final action reflected the concept of “what worked” without attention to what “did not work.”

Thus, moral care is a common ethic in the lives of human beings, an ethic that teachers apply in practice. Caring and regulating pedagogies are based on professional principles and rules in the teaching profession, but these pedagogies involve different epistemic conditions. Moral care was found to be directed toward bringing happiness into students’ lives by means of “no harming students” and nurturing their “character”; caring pedagogy was found to address the happiness of the students but by means of “providing benefit” through improving their intellectual properties and enhancing their academic lives. “Regulating pedagogy” primarily helps “teachers” to handle something, but not primarily in favor of students. Moral care and caring pedagogy call for normative demands of teaching practice and thus play significant roles in improving teaching practice in many ways, whereas “regulating” pedagogy calls for a descriptive aspect of teaching and meets existing demands of teachers without directing attention to reflecting and improving upon those demands.

5.3 Epistemic status of teachers’ practical knowledge

As mentioned: (1) I studied teachers’ reasoning in order to get insight into the present research task, i.e., the epistemic nature of teachers’ practical knowledge; (2) teachers’ reasoning was found to be in accordance with the conceptual framework called the practical argument; (3) teachers’ practical arguments involved six different but interrelated elements (i.e., knowledge claim, grounds, epistemic conditions of practice, personal pedagogical belief system, “but-pedagogy”, and backing); (4) among these elements, I argued that grounds and epistemic conditions of practice are relevant for gaining insight into the “nature” of teachers’ practical arguments. Accordingly, I found that teachers reasoned about their practical knowledge based on a “contextual system” of justification; they justified their practical knowledge with various intentions rooted in their professional context (e.g., “preventing pedagogies,” such as preventing negative emotional reaction in students), situational contexts (e.g., soft interventions such as backgrounds of students), and personal contexts (e.g., personal experience); and (5) in this section I will demonstrate how “epistemic conditions of practice” are relevant for understanding the “epistemic status” of teachers’ practical knowledge.

Epistemic conditions of practice may give more insight into the epistemic status of teachers’ practical knowledge because such conditions reflect the
“epistemic value or weight” embedded in teachers’ contextual justifications. By considering such values, others (e.g., fellow colleagues) may follow how sound or poor the teachers’ contextual justifications are for supporting their practical knowledge. Because a contextual system of justification is embedded in the context it raises, it may not give us an epistemic standard by which to judge the epistemic status of its associated practical knowledge. Different teachers may explicitly or implicitly claim that what they did and what they believed was epistemologically sound because such actions and beliefs are based on the contexts in which they work. For example, Teacher A may believe that “because his/her classroom is very full and in that class there are few misbehaving students, then he/she most often has to apply a direct teaching strategy (e.g., lecturing kids).” In the same context, Teacher B may assert that “in a very full classroom, it is useful and helpful to apply direct teaching strategy, but it may not always work; students may not engage in good learning because it is boring if you just lecture them, and after a while they get tired and distracted from lecture.” These two pedagogical knowledge claims are based on the same restriction (the situational context): the class is full. In other words, both teachers have justified their practical knowledge according on contextual grounds. From the view point of “other” audience, both may have made the right pedagogical decision, since the large number of students in the classroom limits their pedagogical flexibility. And this sounds sensible since teachers were able to put the “action of lecturing students” in practice in different ways.

From an epistemic perspective, however, there is a basic different between the knowledge claims of Teacher A and Teacher B. Teacher A’s knowledge claim has a descriptive epistemic character, i.e., it reflects what “he/she was able to put into practice” (i.e., lecturing the students), whereas Teacher B’s knowledge claim is normative in nature, since in addition to what “he/she was able to put into practice” (e.g., lecturing the students), it follows what he/she “ought to do,” (e.g., lecturing the students is boring and thus he/she should do something different). From the point of view of a practical argument, the implicit or explicit value embedded in the teachers’ contextual justifications represents this difference. In this example, the value embedded in the knowledge claim of Teacher A may be called “being effective in managing the class”; for Teacher B, it may be called “care of the students”. These implicit values in the teachers’ justifications reflect what I have called as the “epistemic conditions of practice”. In other words, these epistemic conditions tell us what the epistemic status of a given contextual claim is. Accordingly, my analysis and interpretation of the data indicated that teachers’ practical knowledge has two epistemic statuses, “praxial knowledge” and “practicable knowledge”.

5.3.1 *Praxial* knowledge

As mentioned in chapter 2, the idea of *praxis* was originally described by Aristotle, who differentiated among three types of human knowledge: *theoria*, *poesis*, and *praxis*. *Theoria* is contemplating human activity aimed at the discovery of truth, and use “theoretical” and foundational reasoning for realizing its goals. *Poesis* is instrumental human action that aims at making things, a kind of “practiced skill and craft in the service of uncontroversial and thus taken-for-granted ends, such as making certain objects” (Regelski, 2005, p. 16). It applied technical reasoning for fulfilling its tasks. *Praxis*, however, is a kind of human accomplishment that involves in “doing” things. Because *praxis* deals with accomplishing “various kinds of things” in regard to “people,” such as teaching, it is governed by an “ethical” dimension. According to Regelski (2005), such an ethical dimension deals with the “right results” (e.g., making a pragmatic and useful difference), and the “rightness” of the results are judged in terms of the people served or affected. In the present research, I found that, in many of their practical arguments, the teachers’ practical knowledge involved just such ethical conditions.

Accordingly, based on my interpretation, teachers’ practical knowledge and their associated practice epistemologically involved “*praxial* knowledge” whenever they used “moral care” and “caring pedagogy” for warranting their practical knowledge. On the one hand, in some of their practical arguments (i.e., when they used moral care), the teachers’ intentions were primarily concerned with the whole character and persona of the students. They stated, for example, that teaching practice should improve social skills, self-esteem, and self-confidence of students along with having academic benefits. Another significant aspect of moral care was being concerned with feelings and emotions of students. The teachers frequently pointed out that students should “feel good” and be in a normal mood so that they could actively engage in learning tasks. As discussed in this chapter, another implicit core value of moral care was “right treatment” in order “not to harm the students.” From an argumentative point of view and according to what I found in chapter 4 (the structure of teachers’ practical argument), the data indicated that “complex pedagogical knowledge” (i.e., comprehensive and integrated pedagogical beliefs) as one dimension of the teachers’ personal pedagogical belief systems reflected the intentions embedded in their practices associated with moral care. In other words, the teachers confirmed that “things in term of students” are multifaceted and should be taken into consideration to improve the quality of students’ lives. According to this personal pedagogical belief, emotional and affective aspects of students’ character influence their cognitive function. Thus, teachers should take care not to treat all students in the
same way, since they may not have the same moods and feelings in the different classroom situations. In addition, teachers should help students improve aspects of their persona other than solely the academic one.

On the other hand, in many cases, the teachers’ intentions reflected “caring pedagogy.” In these cases, the teachers stated that their intentions were to carry out authentic effective (i.e., careful) pedagogy in order to engage students in learning goals. The actions and knowledge corresponding to these ethics were regarded as *praxial* knowledge, since these actions and knowledge reflected the concept of “care” with two inclusive intentions: more engagement in learning and considering the situatedness of the teaching context in favor of students. Moreover, the teachers used pedagogical inclusion and accommodation to meet these intentions. From the point of view of the practical argument, caring pedagogy represents one dimension of teachers’ personal pedagogical belief system, which I call “flexible pedagogical knowledge”. The “but-pedagogy” rebuttal is another likely element of teachers’ practical arguments that is associated with caring pedagogy.

The findings related to moral care and caring pedagogy indicate that teaching is not a kind of human activity with predetermined “means and ends.” Universal means and ends do not reflect the whole reality of life in the classroom; thus, a centralized and universal curriculum may fail to make a significant, pragmatic useful change in the lives of students. “Means” frequently change according to the possible “ends” embedded in the demands of a situation. However, and more importantly, this finding does not imply that teachers are justified in choosing whatever materials and methods they like due to situational demands. This might lead to a misinterpretation of the “*praxis*” aspect of teaching. As Regelski (2005) explains “the situatedness and social constructions” of human activities associated with the concept of *praxis* do not “amount to ‘anything goes’ or mere self-indulgence” (p. 18). The epistemic weights embedded in moral care and in caring pedagogy serve as ethical criteria for judging the “goodness” of teachers’ pedagogical decisions. As I call them in the present study, these are the epistemic conditions of practice.

### 5.3.2 Practicable knowledge

In a general sense, whatever knowledge claims inform a teacher’s decisions and actions, only knowledge that is practicable—that is, capable of being put into practice, of influencing practice—is relevant to being practical. It still remains to be determined whether such knowledge is in accordance with the ethics of care, e.g., to serve useful, pragmatic ends. Knowledge that can be
used (that is practicable) is not always useful. In the data, I found that in many instances of their practical arguments, the teachers justified their knowledge and actions in accordance with “regulating pedagogy” in order to manage their teaching practice. These cases epistemologically represent what I call “practicable knowledge.” Because even though teachers were able to put something into practice, they failed to reflect on the practice in different ways. In some cases, the practicability of the actions was directed toward coping with challenging situations in the classroom. In these cases, teachers explained that they faced a conflicting situation for the handling of which there were no competing actions or alternatives. What they chose to do was supposed to be the most practicable option. In the case below, T1 (4 years experience) explained her view of how a teacher should deal with misbehaving students:

(Q Does it work if you ask misbehaving students to leave the classroom?) I have used it really very, very seldom; just in those situations when students simply cannot calm down. I mean, if one of them starts confusing the whole class and fighting so the other students cannot concentrate. The good thing would be if there were a class and a teacher, and you could send students there to calm down. But we have no such classes because we don’t have enough teachers. So I think that it is not a good thing to ask such students to leave the class, because they will not learn. But then again, I have to think, whether I should act in behalf of one student or, for all of the students.

It seems that the source of this type of practicable action is the embedded restrictions in different classroom situations, and thus teachers put something into practice to cope with the restrictions. But still, they do not carefully reflect on the consequences of their actions both for misbehaving students and for the other students in the classroom. In these cases, teachers may come up with temporary pedagogical decisions as the most practicable ones. In this case, the motive of caring by the teacher is displaced (from one student to other students) due to failure in reception of care by cared-for, i.e., student (Noddings, 2001).

Practicable knowledge, moreover, was not only related to challenging situations. The data indicated that the teachers also used such knowledge in normal situations. The teachers had a kind of default practice or routines. They employed these routines (e.g., the same materials and the same methods) in different situations, for different purposes, and for different students. Teachers failed to tailor their actions according to the demands of a given situations. Instead, they tried to assimilate the complex classroom situations (e.g., differences between students) into their default pedagogical knowledge.
In the case below, a teacher gives his main teaching strategy and explains how it works for handling classroom activities:

(Q Most of the time you seem to prefer to teach, and to talk to the students while standing in front of the classroom. Could you please tell me how such a strategy works?) Well, my teaching method might be a little bit old-fashioned. But I think it works for everybody and for most subject matters. Because in the elementary grades students are still not well prepared to work in groups; I try to give a speech about the lesson and ask questions while teaching. I also stand in front of the classroom because I can see and control how students focus on the lessons (Teacher 2, 4 years experience).

Thus, in a practicable mode of knowledge, the actions at stake, although practical in terms of being put into practice and bringing about results for a certain percentage of the students or in a certain number of situations, do not always account for the differences in the classroom or address the different needs of the students. And this is often a failing of teaching that claims to be practical: what it teaches is not authentically assessed in terms of reliable practicality, i.e., in accordance with ethics embedded in praxial knowledge.

### 5.4 The model of teachers’ practical knowledge based on findings

As illustrated in Figure 2 in chapter 1, based on the theoretical and empirical background of the study, I suggested that teachers’ practical knowledge is developed in a cyclical process, including various steps and elements. The findings, however, indicated that this model can be improved upon from the perspective of its epistemic status. The initial model shows that teachers’ practical knowledge originated in various sources (e.g., social values, formal teacher knowledge base) and can be put into practice in order to meet the demands of the classroom by reflection-in-action and reflection-on-action. In the new model, in this section, Figure 5.3, the findings confirmed that teachers’ practical knowledge is developed in two different ways.
In this model, as portrayed in the Step 1 teachers encounter the critical question of “what to do.” Teachers have already a great deal of knowledge (box 7), which provides the sources for a teacher’s “decisional hypotheses” as to what to teach, why, and how (at the second level, box 2). According to the decisional hypotheses, teachers act on a situation in terms of what to do (box 3) in other words, they want to test how the hypotheses in the second step works and thus get help meeting the pedagogical demands of the classroom. During and after teaching, teachers may reflect on the actions and their consequences in two different ways: first, in a normative reflection (box 4.1), they assess the goodness of their actions in terms of moral care and pedagogical care; as a result of this reflection they may improve the “weak” part of their actions, i.e., the part that failed to meet with the standard of moral care (i.e., it harms the students) and caring pedagogy (e.g., failing to engage some students in learning tasks) Steps 4.1 and 4.1.1 are important in the sound development of teachers’ practical knowledge because teachers perceive their actions as the “test” or “experiment” based on those “hypotheses” in step 2.; thus they consider results and, most importantly, admit the possibility that any one of the “hypotheses” at stake has been faulty and can be improved upon.

Second, at the same stage, i.e., Step 4 (box 4.1), during teaching and afterwards, teachers may also reflect on their actions in a descriptive way: they perceive their actions in terms of the “regulating pedagogy, i.e., what works”
notion without paying enough attention to what may not work, thus defaulting to routine actions. The results of the normative reflection lead to praxial knowledge, and the results of descriptive reflection end up in practicable knowledge. These are considered to be two distinguished epistemic forms of teachers’ practical knowledge. In the cycle of developing teachers’ practical knowledge then, the resulting praxial and practicable knowledge becomes part of teachers’ experiential professional knowledge at level 7 and can thus inform future hypothesizing at stages 1 and 2. In this chart, however, in effect the experiential knowledge (i.e., praxial and practicable knowledge) would grow larger, more prominent, and more influential over time, in comparison to the other kinds and sources of knowledge that influence a teacher’s hypotheses of what, why, and how teach.

5.5 Conclusion of the chapter

The main task of this chapter was to describe the nature of teachers’ reasoning. I observed that from six elements of teachers’ practical arguments, grounds and epistemic conditions of practice serve to yield insight into the nature of teachers’ reasoning. Findings related to grounds showed that teachers used a contextual system of justification, including professional context, situational context, and personal context, in order to support their practical knowledge. Contextual grounds were found to deal with “what” information or the reasons teachers used to justify their practical knowledge. However, the findings indicate that there is an implicit or sometimes explicit value or function embedded in the intentions related to contextual grounds. This value or function deals with “why” teachers relied on a particular set of grounds to justify their practical knowledge.

In the present study, I found that there were two basic epistemic weights implicit in teachers’ contextual ground: morality and efficiency of action. Efficiency of action was presented in two distinct ways: authentic efficiency and naïve efficiency. Morality was based on “moral care”: the core value of moral care was the tenet that guided teachers’ pedagogical practice which “should not harm students” and which should improve their “moral character.” Authentic efficiency was based on “caring pedagogy.” The heart of such a notion was to bring about learning in the students’ lives by means of careful pedagogy. The other form of effectiveness of action was what I called naïve efficiency. With this argument, teachers primarily wanted to handle their teaching practice by means of “regulating pedagogy,” e.g., “what worked,” with ignorance about what did not work. These epistemic conditions of teaching practice indicate that the contextual character of teaching does not neces-
sarily mean that teachers may do “whatever” they like, but these epistemic conditions may be regarded as the “pedagogical ethics” (Kakkori & Huttunen, 2007) of teaching by which others may “objectively” judge how “sound and reasonable” teachers are conducting their pedagogical practice. The following premises illustrate the interaction between grounds and epistemic conditions of practice in a practical argument:

As a teacher I believe in action “A” on the basis of:

a) It is in accordance with my pedagogical obligations embedded in the professional context of teaching;
b) i is embedded in the situatedness of the classroom;
c) Or it is based on my personal experiences.

As a teacher I believe my grounds for justifying the action “A” are reasonable because:

a) These grounds are in accord with morality (i.e., the actions corresponding to these grounds do not harm the students and nurture the students’ moral character);
b) These grounds follow caring pedagogy (i.e., the actions associated with these grounds bring about learning for all students by using flexible and diverse pedagogies);
c) Or are based on “regulating pedagogy” (managing teaching practices primarily in favor of objects rather than students).

Finally concerning the nature of teachers’ reasoning, the findings suggest that the epistemic conditions of practice offer insight into the epistemic status of teachers’ practical knowledge. The findings showed that teachers’ practical knowledge has two shades of epistemic meaning: “praxiality” and “practicability.” Praxial knowledge is related to instances when teachers used “moral care” and “caring pedagogy” for warranting their contextual grounds and their associated claims. Practicable knowledge deals with “regulating pedagogy,” and indicates that teachers were able to put something into practice that worked for managing their practice, but they failed to reflect on what did not work. Praxial knowledge is epistemologically normative, i.e., the practice of teaching can be improved upon, whereas practicable knowledge is descriptive, since teachers assumed their arguments were “fair and accurate account of why” they acted as they did (Fenstermacher & Richardson, 1993, P. 104). Praxial and practicable knowledge were found to have different pattern relationships with other elements of teachers’ practical arguments. For example, I found that the contextual grounds and personal pedagogical belief systems of
praxial knowledge differed from that of practical knowledge in the qualitative data. In the next chapter, the significance level of these pattern relationships will be examined using quantitative methods in order to attain more insight into the epistemic nature of teachers’ practical knowledge.
6 Findings: quantitative description of teachers’ practical arguments

This chapter examines the third research question of this study: What patterns can be found in teachers’ reasoning? I will examine how different elements of teachers’ practical arguments (see chapter 4) are related to epistemic conditions of practice. In other words, the main task is to determine how moral care, caring pedagogy and regulating pedagogy are related to:

- content and the form of the practical knowledge claims,
- the grounds on which teachers relied for justifying their practical knowledge,
- the personal pedagogical belief systems,
- “but-pedagogy,”
- backing, and
- cognitive and affective forms of expression of practical arguments.

6.1 Design and procedure

As demonstrated in chapter 3, each unit of analysis dealt with more than three codes representing the constitutive elements of each piece of a practical argument. This is what I called “inclusive coding,” wherein each piece of argument has different elements calling for other “single” codes. In the present research, each unit of analysis reflected at least four categories: the knowledge claim, the grounds, the epistemic conditions of practice, and the personal pedagogical belief systems. In other words, in all units of analysis I was able to identify these four categories. However, during qualitative data analysis I found that the patterns and internal relationships between categories differ in each unit of analysis. For example, I observed that moral care, caring pedagogy, and regulating pedagogy were associated with distinctive categories in many of the units of analysis (e.g., moral care was more related to initiating and preventing pedagogies than to hard and soft interventions). Accordingly, I nested a quantitative analysis in qualitative findings in order to gain more insight into these patterns and obtain a broader perspective on teachers’ practical arguments. This kind of design is broadly called “nested strategy” in mixed approaches research (Creswell, 2003).

The first step was to decide on the purpose of this quantitative investigation. In other words, I needed to decide what kinds of relationships should be examined: causal, i.e., one or more categories causes another category to
happen (e.g., a situational context causes regulating pedagogy or naïve efficiency); predictions, i.e., one or more sets of categories determine or predict other categories (e.g., situational and personal contexts determine regulating pedagogy); or correlation. Because of two basic limits, it was not possible to study causal and predictive relationships. First, there were no the enough theoretical assumptions to support any causal and predictive relationships between the categories that I developed in the qualitative findings. Second, the research problem in the present study may not be epistemologically consistent with assumptions embedded in experimental methods such as causal and prediction. In other words, the knowledge claim of this research is socially constructed; thus, it is based on meaning and understanding generated by the participants and the researcher. In this kind of research, the interpretation of any relationship is not taken for granted as causal or prediction. Therefore, I decided to examine a kind of “descriptive association” between categories. From this point of view, a relationship between categories is more likely to be simultaneous and not necessarily causal or predictive, and I describe these possible relationships to obtain more insight into the research phenomenon.

The second step was to decide about the “target variable” or the main category to be studied in terms of other categories or variables. The main research task was considered a decisive factor in making the right decision in this case. As discussed in chapters 4 and 5, the findings suggested that, among other things, epistemic conditions of practice were the main category or elements in understanding the epistemic nature of teachers’ practical knowledge. In other words, I found that teachers’ practical knowledge was epistemologically supposed to be good in light of three implicit and embedded conditions: morality, which is based on “moral care”; authentic efficiency, which relies on “caring pedagogy”; and naïve efficiency, which is based on “regulating pedagogy.” Therefore, I decided to examine epistemic conditions of practice in terms of other categories. In this examination I focus on the three important tenets (i.e., moral care, caring pedagogy, and regulating pedagogy) embedded in three epistemic conditions of practice in order to obtain an “objective” understanding and interpretations of the findings.

The third step was to choose the right statistical test or method to examine the descriptive correlation between the epistemic conditions of practice with other categories. From various statistical methods, a “nonparametric” test was considered the best to use. In quantitative research “when data collected flagrantly violate the normal distribution of population [in my case, the normal distribution of categories], the researcher must select an appropriate non-parametric test. Nonparametric inference tests have fewer requirements or assumptions about population [here categories] characteristics” (Ho, 2006, p.
Findings: quantitative description of teachers’ practical arguments

In this research, the parameters, e.g., the mean value and standard deviation of categories were not important to know. Moreover, there were no assumptions about the form or shape of the categories, i.e., whether or not they were normally distributed and had equal variances. Among different nonparametric tests, the chi-square ($\chi^2$) test of independence between two variables was an appropriate tool for analyzing the relationship between epistemic conditions of practice with other categories. “The primary use of the chi-square ($\chi^2$) test of independence is to determine whether two categorical variables are independent or related” (Ho, 2006, P. 363). However, the chi-square test does not say anything about the strength or value of a relationship. In order to assess the power and strength of the relationship between variables, I used Cramer’s V which is a measure applied for this purpose in tables larger than 2.2, and its value ranges from 0 to 1: the larger the value of Cramer’s V, the stronger is the relationship between two set of categories.

When deciding on design, I made the further step of entering the data into SPSS (Statistical Package for the Social Sciences). There were two distinctive steps: (1) describing and defining variables for SPSS; in this case each category as a main variable and related subcategories as its values were defined in SPSS; for example, the epistemic condition was defended as the main variable, and the corresponding subcategories of moral care, caring pedagogy, and regulating pedagogy as its values; (2) entering all units of the practical argument and its possible elements. There were 230 units of analysis. Each unit included some elements (e.g., grounds, knowledge claim, and “but-pedagogy”) that were entered to SPSS one a time. Thus, practically speaking, units of analysis and their included elements corresponded to the variables that were defined and described in the first step. The possible relationships between epistemic conditions of practice with other categories were then examined at the end of this stage.

6.2 Findings

As mentioned the association between values corresponding to the epistemic conditions of practice and other categories was the main target of the analysis. I was particularly interested in investigating how the different types of contextual grounds, the personal pedagogical belief systems, and the content of practical knowledge are related to moral care, caring pedagogy, and regulating pedagogy. This investigation may help us to understand the possible patterns in the teachers’ practical arguments in particular, and in their thinking in general.
6.2.1 Relationship between the content of practical knowledge and the epistemic conditions of practice

As described in chapter 3, the focus of the data collection in the present study was on general pedagogical knowledge. In other words, I examined the content of teachers’ practical knowledge that had something to do with general pedagogical knowledge, including classroom management, instructional strategies, and teaching and learning concepts. In this section, the aim of the examination was to describe the relationship between teachers’ epistemic conditions of practice and the content of their practical knowledge including its three categories.

As demonstrated, the Pearson’s chi-square test was used to determine whether there is a significant relationship between three types of epistemic conditions and teachers’ knowledge claim about classroom management, instructional strategies, and learning and teaching. The Pearson chi-square value was statistically significant. This means that the relationship between the epistemic conditions of practice with the categories of practical knowledge is significant. However, the value or strength of association between two categories is 0.27, based on Cramer’s V.

Table 6.1 Relationship (χ²) between the content of practical knowledge and the epistemic conditions of practice.

<table>
<thead>
<tr>
<th>Categories of the epistemic conditions of practice</th>
<th>Frequency and percentage within the content of practical knowledge</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Classroom management</td>
<td>Instructional strategies</td>
</tr>
<tr>
<td>Caring pedagogy</td>
<td>13</td>
<td>71</td>
</tr>
<tr>
<td>29.5%</td>
<td>65.1%</td>
<td>59.7%</td>
</tr>
<tr>
<td>Regulating pedagogy</td>
<td>26</td>
<td>21</td>
</tr>
<tr>
<td>59.1%</td>
<td>19.3%</td>
<td>16.9%</td>
</tr>
<tr>
<td>Moral care</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>11.4%</td>
<td>15.6%</td>
<td>23.4%</td>
</tr>
<tr>
<td>Total</td>
<td>44</td>
<td>109</td>
</tr>
<tr>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

χ² (df = 4) 32.761, p< 0.05, Crammer’s V = 0.27

Table 6.1 shows that the majority of cases related to classroom management are associated with the units of practical arguments corresponding to regulating pedagogy (59.1%). Also, within classroom management cases, only 11.4% and 29.5% are related to moral care and caring pedagogy respectively. In addition, the Table shows that the cases related to instructional strategies and learning and teaching concepts are the most significant arenas of applying caring pedagogy, with 65.1% and 59.7% respectively. Moral care is
mostly connected to teaching and learning concepts (23.4%), even though there are still some moral considerations in the classroom management and instructional strategies.

To return to the description of regulating pedagogy in chapter 5, it can be said that in the cases and arguments related to classroom management, the teachers were primarily concerned with regulating classroom activities by means of “pedagogical assimilation” and the “what works” notion; thus, they failed to consider caring pedagogy and moral care. In the arguments related to instructional strategies, teachers applied the caring pedagogy, i.e., their arguments were associated with “pedagogical accommodation” and the “pedagogical inclusion” principles. This means that the main intentions of teachers in the instructional strategies were to meet the situational demands of the classroom and to use flexible actions in order to engage most of the students in the learning tasks. The principles embedded in moral care, i.e., “fair treatment” of students and “respectfulness,” and “non-academic commitment” seem to have a higher degree of application in the teaching and learning concepts where they may have deep and established beliefs about teaching and learning.

6.2.2 Relationship between the forms of practical knowledge and the epistemic conditions of practice

Two forms of practical knowledge were studied: knowledge-in-use, and teachers’ overarching beliefs. The aim of this section is to describe whether there is an association between epistemic conditions and forms of practical knowledge.

Table 6.2 Relationship between the forms of practical knowledge and the epistemic conditions of practice.

<table>
<thead>
<tr>
<th>epistemic condition</th>
<th>Frequency of, and percentage within forms of knowledge</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Overarching beliefs</td>
<td>Knowledge in use</td>
</tr>
<tr>
<td>Caring pedagogy</td>
<td>59</td>
<td>62.1%</td>
</tr>
<tr>
<td>Regulating pedagogy</td>
<td>17</td>
<td>17.9%</td>
</tr>
<tr>
<td>Moral care</td>
<td>19</td>
<td>20%</td>
</tr>
<tr>
<td>Total</td>
<td>95</td>
<td>100%</td>
</tr>
</tbody>
</table>

$x^2$ (df = 2) 5.69, P < 0.05, Cramer’s $V = 0.16$
The Pearson chi-square for epistemic conditions and the forms of practical knowledge show that there are no significant statistical differences at a significance level ($\alpha=0.05$); however, the observed differences are statistically significant at significance level ($\alpha=0.1$). Cramer’s V also shows that the observed differences are not strong enough (0.16). The Table demonstrates that the largest difference was seen in regulating pedagogy, where the amount of application of this condition in knowledge-in-use (31.09%) is higher than that of the overarching beliefs (17.9%). There are, however, small differences in two other categories, i.e., caring pedagogy and moral care, in terms of using them in two forms of knowledge. This means that teachers significantly focused on the “what works” notion in order to regulate their classroom activities while teaching. However, they were found to be use caring pedagogy when their practical arguments were about their overarching beliefs. This means that teachers try to be careful professionals when they are asked about their established and general teaching beliefs; however, when teachers are in the real teaching context, they are faced with such complex, unstable, and challenging situations that they no longer show the same degree of carefulness as they expressed in their established beliefs about teaching.

### 6.2.3 Relationship between the contextual grounds and the epistemic conditions of practice

As demonstrated in chapter 5, teachers justified their practical knowledge on contextual grounds but in three distinct ways: professional, situational, and personal grounds. In this section, I want to determine how these three forms of contextual grounds are related to epistemic conditions.

#### Table 6.3 Relationship ($x^2$) between the contextual grounds and the epistemic conditions of practice.

<table>
<thead>
<tr>
<th>Categories of the epistemic conditions of practice</th>
<th>Frequency of, and percentage within contextual grounds</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caring pedagogy</td>
<td>Situational: 39 (52%)</td>
<td>Personal: 26 (61.9%)</td>
</tr>
<tr>
<td>Regulating pedagogy</td>
<td>Situational: 28 (37.3%)</td>
<td>Personal: 6 (14.3%)</td>
</tr>
<tr>
<td>Moral care</td>
<td>Situational: 8 (10.7%)</td>
<td>Personal: 10 (23.8%)</td>
</tr>
<tr>
<td>Total</td>
<td>75 (100%)</td>
<td>42 (100%)</td>
</tr>
</tbody>
</table>

$x^2$ (df = 4) 10.21, $p<0.05$, Cramer’s V = 0.15
Findings: quantitative description of teachers’ practical arguments

The Pearson chi-square test suggests that the observed differences in table 6.3 are statistically significant at the significance level (α=0.05). However, the power of the relationship is not high, based on Cramer’s V (0.15). As illustrated in Table 6.3, the highest rate of using caring pedagogy is seen in personal context arguments (61.9%) and professional context arguments (57.5%). The regulating pedagogy is in line with previous pattern and is mostly used in the situational context, i.e., the highest rate of using regulating pedagogy is seen in the practical arguments that are justified on the situational grounds (37.3%). Moreover, the application of moral care in the personal (23.8%) and professional grounds (19.5%) is more than situational grounds (10.7%).

Considering the cases and descriptions of the contextual grounds, I should point out the “what works” notion was mostly used when teachers faced with situational demands and restrictions in the classroom including soft and hard interventions as described in chapter 5. However, caring pedagogy and moral care were used when teachers gave justifications based on their personal experiences and views as well as when they justified their beliefs based on their professional commitment. This means that teaching as a particular professional context carries pedagogical obligations, which should be primarily based on the concept of care (caring pedagogy and moral care) as described in this study in chapter 5. However, in hard and challenging situational cases teachers may need to think mainly about effective pedagogies to relieve the demands of these situations.

6.2.4 Relationship between the pedagogical belief system and the epistemic conditions of practice

As discussed in chapter 4, teachers’ personal pedagogical theories about teaching and learning could be interpreted from each practical argument unit. The teachers’ pedagogical belief systems were found to be multidimensional, although clustered in three broad theories: progressive personal theories of learning, tentative personal theories of teaching, simple personal theories of teaching and learning. In this section, I want to test how categories of epistemic conditions are related to or independent of categories of teachers’ pedagogical belief systems. The result of the Pearson chi-square test df=4 (72.44) and Cramer’s V (0.40) indicates that there is a stronger association between the epistemic conditions of practice and the teachers’ pedagogical belief systems than the relationship that the epistemic conditions of practice had with previous variables, such as the content, the forms of practical
knowledge, and contextual grounds. Table 6.4 also proves the strength of this relationship.

Table 6.4 Relationship ($x^2$) between the teachers’ pedagogical belief system and epistemic conditions of practice.

<table>
<thead>
<tr>
<th>Categories of the epistemic conditions of practice</th>
<th>Frequency of, and percentage within pedagogical belief system</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tentative theories on teaching</td>
<td>Progressive theories on learning</td>
</tr>
<tr>
<td>Caring pedagogy</td>
<td>75</td>
<td>67.6%</td>
</tr>
<tr>
<td>Regulating pedagogy</td>
<td>14</td>
<td>12.6%</td>
</tr>
<tr>
<td>Moral care</td>
<td>22</td>
<td>19.8%</td>
</tr>
<tr>
<td>Total</td>
<td>111</td>
<td>100%</td>
</tr>
</tbody>
</table>

$x^2$ (df = 4) 72.44, p< 0.05, Cramer’s V = 0.40

As can be observed, the teachers have mainly used the caring pedagogy when their pedagogical belief systems were based either on tentative theories of teaching (67.6%) or progressive theories of learning (64.8%). By contrast, teachers used more regulating pedagogy (64.6%) when holding the simple theories of teaching in comparison with than when they hold the other two types of theories. This understanding shows that whenever the teachers reflected on the unpredictability (i.e., the events in the teaching contexts change and are volatile), the complexity (different educational objects, e.g., students’ emotions and cognitions are related to each other in the teaching context), and the multidimensionality (i.e., teaching is not only teaching the learning materials but also, for example, educating and nurturing) of the teaching context, they applied the rules and principles associated with caring pedagogy. This means that the main idea in the teachers’ belief systems is to use good or “careful pedagogies” in order to enrich the “learning environment”. In other words, in the teachers’ belief systems, except the simple belief theories, the main concern of teachers is to apply good and caring pedagogies (e.g., based on pedagogical accommodation and inclusion) in order to improve the students’ learning through enriching the learning environment. Regulating pedagogy and moral care have peripheral roles and thus are less emphasized than the caring pedagogy in the teachers’ pedagogical belief systems.
6.2.5 Relationship between the “but-pedagogy” and the epistemic conditions of practice

As described in chapter 4, but pedagogy was found to be either simple or incorporated (see chapter 4). In this section, I test the relationship between the “but-pedagogy” and epistemic conditions of practice to see how they are statistically related. Table 6.5 illustrates this relationship.

Table 6.5 Relationship ($x^2$) between the “but-pedagogy” and the epistemic conditions of practice.

<table>
<thead>
<tr>
<th>Categories of the epistemic conditions of practice</th>
<th>Frequency of, and percentage within “but-pedagogy”</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Incorporated “but-pedagogy”</td>
<td>Simple “but-pedagogy”</td>
</tr>
<tr>
<td>Caring pedagogy</td>
<td>42</td>
<td>91.3%</td>
</tr>
<tr>
<td>Regulating pedagogy</td>
<td>0.00</td>
<td>0.00%</td>
</tr>
<tr>
<td>Moral care</td>
<td>4</td>
<td>8.7%</td>
</tr>
<tr>
<td>Total</td>
<td>46</td>
<td>100%</td>
</tr>
</tbody>
</table>

$x^2$ (df = 4) 51.88, p< 0.05, Cramer’s V = 0.37

The Pearson chi-square test for this examination violates the basic requirement, since one of the cells has expected frequency less than 5. However, to obtain some insight into the relationship between two categories, a brief interpretation is made here. The result of this test is statistically significant. In other words, three categories of “but-pedagogy” are related to categories of epistemic conditions in different ways. The most significant finding is the relationship between caring pedagogy and “but-pedagogy”. This relationship shows that the arena of caring pedagogy is the most significant context for using “but-pedagogy” whereby teachers try to use pedagogical accommodation and inclusion principles. As can be seen, 91.3% of incorporated pedagogy and 95.2% of simple pedagogy are associated with caring pedagogy. This means that teachers are more flexible in holding different pedagogies when their main concern is to enrich the “learning environment” for “students” in comparison to situations where their main concern is to conduct effective practice in regulating classroom activities in favor of the “teacher.” In other words, teachers were found to use “but-pedagogy” when the core of their argument was to “bring about learning for the students,” while they failed to apply this pedagogy when the core of their argument was the “teacher” him/herself. “But-pedagogy” is infrequently used in the arguments...
corresponding to moral care (8.7 % integrated and 4.8 % simple “but-pedagogies”). This might mean that the teachers’ morality toward their practice is deeply established as long as they use it in their arguments; thus, they may not wish to bring any rebuttal to the part of their argument based on morality. In other words, in moral treatment of students, teachers are more consistent and stable, and they may not show much flexibility.

6.2.6 Relationship between the backing and the epistemic conditions of practice

Backing was found to be an element of teachers’ practical arguments by which teachers tried to give more information and data to support their argument, specifically the grounds on which they relied for justifying their practical knowledge. There were two types of backing: objective and subjective. This examination aims at testing the relationship between the epistemic conditions of practice and the two types of backing (see chapter 4).

Table 6.6 Relationship ($x^2$) between the “backing” and epistemic conditions of practice.

<table>
<thead>
<tr>
<th>Categories of the epistemic conditions of practice</th>
<th>Frequency of, and percentage within “backing”</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Objective backing</td>
<td>Subjective backing</td>
</tr>
<tr>
<td>Caring pedagogy</td>
<td>26</td>
<td>61.9%</td>
</tr>
<tr>
<td>Regulating pedagogy</td>
<td>13</td>
<td>31%</td>
</tr>
<tr>
<td>Moral care</td>
<td>3</td>
<td>7.1%</td>
</tr>
<tr>
<td>Total</td>
<td>42</td>
<td>100%</td>
</tr>
</tbody>
</table>

$x^2 (df = 4) = 9.11$, $p< 0.05$, Cramer’s $V = 0.14$

The Pearson chi-square test indicates that the observed differences are not statistically significant at the significance level ($\alpha=0.05$), but they are at the ($\alpha=0.1$). The observed differences, however, show that there is not a large difference between the application of the objective backing and the subjective backing in the caring pedagogy. Tables 6.6 shows that 61.9% of cases related to objective backing and 56.3% of subjective backings are related to caring pedagogy. This shows that there are no big differences in using caring pedagogy in terms of subjective and objective backings. However, such a difference is somehow big in cases related to regulating pedagogy and moral care.
The application of moral care in subjective backing is more than of objective backing (31.3% versus 7.1%). In addition, the backing associated with regulating pedagogy is more objective (31%) than subjective (12.5%). This may mean that when teachers faced factual restriction in the teaching context, they tried to apply regulating pedagogies, i.e., pedagogical assimilation and the “what works” notion and provide the objective backings to support these pedagogies. Moreover, when they used the pedagogies associated with moral care, they provide subjective backings to support their reasoning.

6.2.7 Relationship between the cognitive form of premises and the epistemic conditions of practice

As did Fenstermacher and Richardson (1993), I found that the teachers expressed their practical arguments with four types of premises: value, stipulative, empirical, and situational. In this section the association between these forms of premises and the epistemic conditions of practice is examined.

Table 6.7 Relationship ($x^2$) between the “cognitive form of premises” and the epistemic conditions of practice.

<table>
<thead>
<tr>
<th>Categories of the epistemic conditions of practice</th>
<th>Frequency of, and percentage within “backing”</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Value 50.9%</td>
<td>Stipulative 72.1%</td>
</tr>
<tr>
<td>Caring pedagogy</td>
<td>29</td>
<td>31</td>
</tr>
<tr>
<td>Regulating pedagogy</td>
<td>7%</td>
<td>10</td>
</tr>
<tr>
<td>Moral care</td>
<td>42.1%</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>57</td>
<td>100%</td>
</tr>
</tbody>
</table>

$x^2$ (df = 6) 43.076, p< 0.05, Cramer’s $V = 0.30$

The Pearson chi-square for this testing is statistically significant; thus the observed differences in Table 6.6 can be interpreted as significant. The association of all forms of premises with caring pedagogy is higher than with two other epistemic conditions; in this case the stipulative premise has the biggest association (72.1%). As for regulating pedagogy, the situational premises are used more than the other forms of premises with 38.9%; in addition, the value premises found to have the lowest degree of application with regulating pedagogy (10.7%). Value premises also have the widest application when the
teachers have used moral care as an epistemic condition of their practice (42.1%).

This finding indicates regardless the strong association between caring pedagogy with all forms of premises, there are other significant relationships between premises with other subcategories of the epistemic conditions of practice. Value premises have their roots in moral care when teachers are mainly concerned about the notion do “no harm” and nurture the whole character of students. The teachers used situational premises when they warranted their practical knowledge with regulating pedagogy, i.e., pedagogical assimilation and “what works” notion. This may mean that teachers use situational premises when they are faced with hard and soft interventions in the situational context of teaching as described in chapter 5. The widest use of stipulative premises in caring pedagogy shows that the teachers present their personal theories (in the form of stipulative premises) about how to enrich the learning environment, since the main concern of the teachers was found to be related to fostering students learning in caring pedagogy.

6.2.8 Relationship between the affective forms of arguments and the epistemic conditions of practice

As discussed in chapter 4, the teachers were found to express their practical argument in an affective form including three types: hopes, fears, and commitment. The aim of the examination in this section is to describe the possible relationships that these types may have with epistemic conditions of practice.

Table 6.8 Relationship ($x^2$) between the affective form of arguments and the epistemic conditions of practice.

<table>
<thead>
<tr>
<th>Categories of the epistemic conditions of practice</th>
<th>Frequency of, and percentage within affective form of arguments</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hopes</td>
<td>Fears</td>
</tr>
<tr>
<td>Caring pedagogy</td>
<td>50</td>
<td>71.4%</td>
</tr>
<tr>
<td>Regulating pedagogy</td>
<td>12</td>
<td>17.1%</td>
</tr>
<tr>
<td>Moral care</td>
<td>8</td>
<td>11.4%</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100%</td>
</tr>
</tbody>
</table>

$x^2$ (df = 4) 35.16, $p<0.05$, Cramer’s $V = 0.28$
Findings: quantitative description of teachers’ practical arguments

The Pearson chi-square test indicates that the two sets of categories are related to each other. As illustrated in Table 6.8, the majority of arguments that the teachers expressed in “hopeful” and “commitment”-affective language are related to caring pedagogy, with 71.4% and 61.7% respectively. The data also suggest that the arguments corresponding to fears with 40.7% are expressed more in the regulating pedagogies than are hopes, with 17.1% or commitment with 4.3%. In addition, the affective form of commitment has the highest degree of application in moral care, with 34% in comparison with fears, with 14.2% and hopes 11.4%.

In general the data show that teachers were found to be more careful and committed in the cases corresponding to caring pedagogy, i.e., when they warranted their practical argument in light of “pedagogical accommodation and inclusion”. In addition, they expressed more fears when they warranted their practical knowledge based on “pedagogical assimilation” and “what works” notion. This means that teachers were more hopeful in their practice when the core of their argument was found to address providing a good learning environment for all students rather than situations in which the core of their argument was found to be related to regulating classroom activities in terms of teachers.

6.3 Conclusion of chapter six: patterns within the structure of teachers’ practical arguments

The main purpose of this chapter was to study the patterns among the elements of teachers’ practical arguments. Because the epistemic conditions of practice were considered to be the main element in gaining insight into the epistemic nature of teachers’ practical knowledge, I examined its association in terms of other relevant categories. In other words, the epistemic conditions of practice were regarded as a dependent category (variable) and the other categories as independent variables. The quantitative data analysis in this chapter showed that there are three distinct patterns within the structure of teachers’ practical arguments wherein the sub-categories of epistemic conditions of practice are related to different elements of teachers’ practical arguments. Within these patterns moral care embedded in morality acts as the main category of the first pattern, and it was found to be mainly associated with some other particular categories. Caring pedagogy rooted in authentic efficiency and its associations with other distinct categories make up the second pattern. And regulating pedagogy originating from naïve efficiency was found to be related to some specific elements: this accounts for the third pattern in the teachers’ practical arguments. It should be noted that these
patterns are not clear-cut, but they may provide some empirical data that yield more insight into the epistemic nature of teachers’ practical knowledge. Figure 6.1 illustrates the outline of these patterns.

Figure 6.1. The patterns within the structure of teachers’ practical argument.

As demonstrated in Figure 6.1, morality, i.e., moral care, as an epistemic condition is used when teachers’ arguments revolve around learning and teaching concepts as one of the main themes in their general pedagogical knowledge; it is also associated with their overarching beliefs. This means that morality is used to warrant the part of the teachers’ practical knowledge that is more inclusive, general, and probably most deeply established. It is also the case that when teachers justify their practical knowledge on personal grounds, their justifications are mainly warranted by morality or moral care. Morality is also primarily associated with progressive theories of learning whereby teachers see the students as the source of knowledge who can construct their own knowledge; in addition the teachers believe that learning is a long-term process whereby students learn step-by-step and gradually. This means that morality or moral care is rooted in the teachers’ personal belief systems about students and their ability to learn, i.e., students are placed at the core of the teachers’ argument. In order to support the reliability of moral care, the teachers apply more subjective backing such as meta-reasoning, i.e., reasoning on reasoning. This means because the cases corresponding to mo-
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Findings: quantitative description of teachers’ practical arguments

In terms of the language of expression, Figure 6.1 shows that the practical arguments corresponding to morality are mainly associated with value premises, meaning teachers’ practical arguments in these cases aim at supporting doing something good for students. This is in line with the relationship between morality and progressive theories of learning, since both of these relationships indicate that students are at the core of teachers’ practical knowledge when warranted them by morality or moral care. The affective form of expression in moral care is commitment. This also means that teachers show commitment to the students as a main component of their moral argument. Morality as one dimension of the epistemic conditions of practice, however, is independent of “but-pedagogy”. This may mean that teachers decline to suggest rebuttal pedagogy or counterbalancing belief to the part of their practical knowledge claims warranted by moral care or moral theory. In other words, teachers have assumed that the practical knowledge claims that correspond to morality are deep, established, and good enough; therefore, proposing counterbalancing arguments is no longer the point.

The second major pattern, illustrated in Figure 6.1, is the relationship between authentic efficiency, i.e., caring pedagogy, as one dimension of the epistemic conditions of practice and other elements of teachers’ practical arguments. This pattern contains the largest network in the structure of teachers’ practical arguments thus indicating that the teachers have used “caring pedagogy” in a variety of classroom situations. From the perspective of the content of practical knowledge, caring pedagogy is mainly related to instructional strategies and then to learning-teaching concepts. This reflects a reasonable association, since the main intentions of caring pedagogy were found to be based on two basic principles: “pedagogical inclusion” and “pedagogical accommodation.” From this point of view, teachers try to design and apply the flexible and a variety of instructional strategies that engage all the students in the learning tasks in different situations of the classroom. The form of practical knowledge shows that while both knowledge-in-use and overarching beliefs were found to be related to caring pedagogy, the knowledge-in-use had the larger association, thus indicating that caring pedagogy mainly deals with real situations in the classroom. The other significant relationship in the second major pattern is when teachers use caring pedagogy in all three subcategories of the contextual grounds. However, the data suggested that caring pedagogy had the strongest association with professional context. This means that pedagogical obligations including “initiating and preventing pedagogies” should be based on pedagogical inclusion and peda-
gogical accommodation principles in order to meet teachers’ intentions embedded in the professional context.

From the perspective of the pedagogical belief systems, even though caring pedagogy was related both to tentative theories of teaching and progressive theories of learning, it was primarily found to be related to the tentative theories on teaching. This means that teachers may reflect on unpredictability, complexity, and multidimensionality of teaching when they use caring pedagogy as an epistemic condition of their practice. This is in line with the fact that most of the practical arguments with “but-pedagogy” were found to be related to the caring pedagogy. This finding shows that “flexibility and diversity in pedagogy and practice” is one of the most significant dimensions of the cases when teachers have used caring pedagogy to warrant their practical knowledge. As for the backing, the data suggest that caring pedagogy is primarily associated with objective backing.

The relationship between forms of expression and caring pedagogy shows, on the one hand, that stipulative and empirical premises were mostly used when teachers warranted their practical knowledge in light of principles embedded in the caring pedagogy. This means that the teachers have expressed their arguments in terms of meaning and concepts that may originate either from existing theories or their personal theories or it can be subject to empirical examinations in different ways. On the other hand, from three types of affective forms, “hope” is the major expression of the practical arguments when the teachers warrant their practical knowledge based on caring pedagogy, even though “commitment” and “fears” have the significant relationships.

The third major pattern, according to Figure 6.1, is the association of naïve efficiency, i.e., regulating pedagogy, and the other elements of the teachers’ practical arguments. The data suggested that the practical knowledge corresponding to classroom management was the most significant area for using regulating pedagogy. In addition, knowledge-in-use and situational context representing the form of practical knowledge and contextual grounds were found to have significant relationships with regulating pedagogy. This may reflect the challenging character of teaching whereby teachers supposed that caring pedagogy and moral care no longer work. Therefore, teachers mainly express their arguments in the cognitive and affective forms of situational premises and fears respectively. It means that there are hard, challenging situations in the classroom, which teachers should “regulate” by “pedagogical assimilation” and the “what works” tenet because there may be negative and undesirable consequences. The personal belief theory that lies behind this pattern is what I call the simple theories of teaching and learning. According to this theory of knowledge, teachers fail to reflect on the complexi-
ties of classroom life, and they probably try to ease the classroom situations by universal courses of action or routines. They also assume that some of the students somehow have fixed schooling fate and their academic and learning capacity may not be improved upon; thus, the “practicable actions” should be acted on in order to assimilate their characters to the certain “pedagogical frame” of the teachers. The teachers were found to be using some factual information (e.g., the number of students in a classroom) in order to back up their arguments associated with this pattern.

Considering these three patterns, I conclude that the pattern associated with morality (moral care) may be called “virtue-for-student” reasoning, because the prime intention at the core of its associated elements is to care about the students in terms of nurturing their moral character. Also, the pattern associated with authentic efficiency (caring pedagogy) is what I call “intellect-for-student” reasoning, because the foremost intention embedded in its associated elements is to care about the students in terms of improving their intellectual or academic lives (simply to foster their learning). The patterns of virtue-for-students and intellect-for-students represent the epistemic status of teachers’ practical knowledge as praxial knowledge. In other words, teachers’ practical knowledge calls for praxial knowledge provided it meets with two epistemological conditions of practice: moral care and caring pedagogy. This understanding in turn shows how praxial knowledge is related to different elements of teachers’ practical arguments.

On the other hand, the pattern related to naïve efficiency (regulating pedagogy) reflects the epistemic status of practical knowledge as “practicable knowledge.” The pattern then shows how teachers’ practicable knowledge is related to different elements of teachers’ practical argument.

6.4 A final remark about findings

The core task of this study was to make an “account” of the epistemic nature of teachers’ practical knowledge. Since practical knowledge is mainly believed to develop as the result of teachers’ professional experiences and reflection, I relied on teachers’ understanding, perception, and viewpoints in order to obtain insight into the phenomenon. However, in order to (re)present the teachers’ perceptions and understanding in academic and scholarly language, I interpreted and categorized the meanings produced by the participating teachers. Because the account is mainly based on the participants’ perceptions and the researcher’s interpretation of the researched phenomenon, it is important to demonstrate how accurately the work was done, i.e., how valid or trustworthy the account is. In order to address this task, I will discuss the
steps, measures, and all considerations regarding the validity or trustworthiness of the findings in chapter 7.
7 Validity of the account

This chapter deals with the validity of the account created through this research. Validity in qualitative research does not carry the same connotations as it does in quantitative research (Creswell, 2003). For example, the issues of reliability and generalizibility are not concerned as are emphasized in quantitative research. The issue of validity in qualitative research is more about trustworthiness. Regarding this issue, discussing on the issues of credibility, transferability, dependability, and confirmability, Lincoln and Guba (1985) pointed out that prolonged engagement and persistent observation of the site of the research phenomenon as well as using a triangulation perspective for data collection and analysis are important general measures that increase the trustworthiness of the qualitative research. In the following sections, I will demonstrate the issues related to validity or trustworthiness of my research. Since the core source of knowledge production in the research is the participants’ data and the interpretation of that data by researcher, the main task is thus to illustrate:

1. How accurately were the data collected and in a way that “presents” the teachers’ perceptions of the researched phenomenon?
2. How accurately were the data interpreted and in a way that “represents” the teachers and researchers’ accounts of the researched phenomenon?
3. How consistent were the data collection and the data interpretations with the knowledge claim assumptions and paradigm of the study?

7.1 Data collection validity

“Validity of data collection” is important to consider in qualitative research. The researcher should collect the data that are relevant for obtaining insight into the research task or research phenomenon. Relying on the triangulation standpoint, i.e., using different sources of knowledge and data collecting tools, has been one of the most emphasized measures in qualitative inquiries for increasing the validity of the data collection procedure (see, for example, Denzin, 1978). However, I believe that before deciding on any type of collecting tool or collecting actions, the researcher should objectively identify what kinds of data are needed for gaining insight into the research phenomenon. Of course while conducting a study, researchers may need a degree of
flexibility about the kinds of data, but it is still important to know how this flexibility shifts the nature of the data, and thus the data collection measures.

I considered two important issues in order to increase the soundness of my data collection phase, which was critical to my study: what type of data I needed in order to meet the demands of the research task? And what collecting tool (or tools) did I use to collect the data? Regarding the former issue, I considered three criteria in order to identify the “type of data” that serves as the source of knowledge in terms of the research task: the data’s nature, content, and form.

The “nature” of the data concerns the core meaning and idea of the research phenomenon. In this study, the core essence of the data was the “teachers’ reasoning.” In other words, I assumed one of the possible ways to obtain insight into the epistemic nature of teachers’ practical knowledge would be to study their reasoning. Reasoning is one aspect of research on teachers’ thinking and knowledge. Focusing on reasoning as the nature of data directed me to consider the following measures when collecting the data:

- Reasoning is found in the deeper layers of teachers’ thinking and knowledge; thus, I mainly relied on interviews as a research tool.
- In the interviews I tried to use open and probing questions in order to mine the teachers’ reasoning as deeply as possible.
- Because reasoning is a challenging phenomenon on which to draw and because many teachers may refuse to present their real reasoning, I tried not to ask technical or direct questions. Rather, by asking several questions about a particular topic, I tried to obtain insight into the reasoning behind it.
- I designed and asked indirect “why”-type questions. For example, instead of asking, “Why did you ask the student to leave your classroom?” I asked “I understand your situation and your classroom conditions; I too have been in such situations many times, but just for information, how do you convince the parent of the student that what just you did was useful for their child?”

The content of the data was considered in terms of practical knowledge in this research. Because I found that the content of practical knowledge is extensive and covers many areas such as knowledge of subject matter, pedagogical content, curriculum, and so forth (see, for example, Elbaz, 1983; Meijer, 1999), I focused on the “teachers’ general pedagogical knowledge” as the content of data collection. In other words, I focused on studying the epistemic nature (reasoning) of the practical knowledge of teachers about the themes included in general pedagogy. Therefore, while collecting data (that is conducting interviews and observations), I focused on the content of the
practical knowledge related to general pedagogical knowledge. I should also point out that I described the themes related to general pedagogical knowledge based on the existing literature about teachers’ knowledge as well as on a preliminary investigation of teacher educators (see, chapter 3 for more information).

The form of the data was also considered in terms of the teachers’ practical knowledge. Teachers’ practical knowledge is described as constituting all teachers’ cognitions, including their interactive thinking and cognition, procedural knowledge or knowing, motives, images, and so forth. In this research, I defined teachers’ practical knowledge in terms of its function, i.e., the help and guidance that such knowledge can provide teachers to do their actions. I considered two forms of knowledge to be relevant for this image of practical knowledge: the teachers’ overarching beliefs and knowledge-in-use (see chapter 3 for more details). Therefore, the identification and studying the data based on this framework was objectively possible. The most important function of this framework was the help it provided in concentrating on a particular area and on the themes of teachers’ practical knowledge.

Along with the type of data, it is important to choose the right tool(s) and procedures to collect the data. Considering the type of data I needed, I mainly used interviews and observation as collecting tools. Based on the idea that reasoning is found in a deep layer of the teachers’ thinking, I used interviews as my main tool. However, as has been mentioned about the content and form of the data, I used two different types of interviews. Semi-structured interviews were used to collect data on teachers’ overarching beliefs. I used the semi-structured type because the content of teachers’ practical knowledge had been already decided as being related to general pedagogical knowledge; thus, some guidelines and general themes of the teachers’ general pedagogical knowledge were included in the semi-structured interview. In addition, observations and stimulated recall interviews were used to collect data on the other form of teachers’ practical knowledge (knowledge-in-use). Knowledge-in-use was considered to be what teachers show and demonstrate by “doing,” i.e., by teaching. Thus, in order to collect data related to this form of knowledge, I first observed the teachers’ classrooms and their teaching, and then I conducted an interview about the issues and events that were related to general pedagogical knowledge (see chapter 3 for more details).

7.2 Data interpretation validity

According to Creswell and Miller (2000), validity in qualitative inquiries is mainly about how accurately an account represents the reality of the re-
searched phenomenon. From this point of view, inferences drawn from the data are critical and important to consider. In the practical steps in qualitative research, it is thus very important to demonstrate how the data analysis and interpretation are done. Even though it is generally believed that the interpretation and analysis of data in qualitative research are context bound and especially dependent upon the researcher, it does not absolve the researcher of responsibility for showing how objectively the data interpretation and analysis produce “a” particular account of the researched phenomenon. Such a demonstration indicates how sound “an” interpretation makes sense. In this research, I was mainly concerned about two aspects of data interpretation, and then I designed some measures to deal with these in order to increase the accuracy of the account:

1. How credible were the data interpretations in terms of what I did as a researcher?
2. How sound were data interpretations and data analyses in terms of whether they could “represent” the teachers’ perceptions and thinking about the researched phenomenon?

7.2.1 Credibility of data interpretation in terms of the researcher’s actions

As mentioned in chapter 3, the section on knowledge claim assumptions, the knowledge claims of this study are shared by the researcher and the participants. The researcher’s share was to “interpret” the data provided by the teachers; the data are considered the teachers’ share. Thus, the first question regarding the credibility of the data interpretation arises in terms of the researcher: does the interpretation make sense to the researcher him/herself? As a researcher, I took the following actions to enhance the credibility of the data interpretation or data analysis generally: I used the existing knowledge and models to analyze the data; and I went over the data several times to develop the interpretation.

My process of analysis and interpretation initially began with an interactive and iterative relationship between the data and the existing knowledge and theories about the researched phenomenon. As mentioned in chapter 3, I specifically used Toulmin’s (2003) model of argument and Fenstermacher and Richardson’s (1993) model of practical argument to guide the “general domains” of the data. These models helped me to develop a consistent conceptual framework for data interpretation and analysis. This means that the data interpretation was not blind and that initially credibility arose from existing knowledge and theories. However, this type of categorization was not
“content specific.” In order to rely on data from the participants, I developed content-specific categories within the general conceptual framework (see chapter 3 for more details.). This new content-specific categorization was mainly based on my interpretation of the semi-structured and stimulated recall interviews with the participants. In order to see how this content-specific categorization made sense, I went over the data in two different stages. In the first stage, I developed an initial system of categories for the data provided by two of the participants. After seven months of doing initial categorizations, I started a new round of data analysis from data provided by the other four participants. I wanted to know whether the data interpretation and categorization in the first stage were reliable and consistent, and whether there was new evidence for new understanding or whether the data were already saturated. Creswell and Miller (2000) call this procedure “disconfirming evidence wherein investigators first establish the preliminary themes or categories in a study and then search through the data for evidence that is consistent with or disconfirms these themes” (p. 127).

The result of the second stage of data analysis was compared with the initial categorization. This comparison had a two-fold function in developing the final system of categorization with a higher degree of credibility: it revealed the internal consistency of the data interpretation (i.e., to what degree the initial system of categories was consistent with the second system of categories); and it helped me to identify whether the data were already saturated in the first stage or whether there was still new evidence for new categories. Internal consistency was examined in the three levels based on the system of categorization: subcategories, upper categories, and themes. The biggest disagreement between the first phase and the second phase was in the subcategories, and in a few cases, in the upper categories levels. However, there was full and perfect agreement at the themes levels. This means that the higher in meaning load, the less disagreement and thus the fewer changes in the categories. It should also be pointed out that many of the disagreements in the subcategories and upper categories were only at the “word” level and not necessarily in the meanings and perceptions.

Along with some changes in the initial categories, some new categories (mainly subcategories and upper categories) developed while the second round of data was being analyzed; however, the data were saturated at some point. The result of this procedure (i.e., two rounds of data analysis and interpretations) was supposed to increase the validity or trustworthiness of data interpretation from my point of view. In order to make sure that whether what I interpreted was a representation of what teachers thought, I tried to get the teachers’ feedback about my interpretation in different ways.
7.2.2 Credibility of data interpretation from the viewpoint of the participants

In research on teachers’ thinking and knowledge, it is generally assumed that “language data,” meaning what teachers express through communication with researchers (e.g., data collected by interviews), represent their thinking and knowledge about the research problems at stake (Freeman, 1994). Considering the contexts or perspectives, i.e., the practical and theoretical perspectives, (see the introduction to the present research and the section on positional-ality) in which the present research was done, this representative assumptions and views are behind the data interpretation of the research. The most important measure that I took to increase the validity of my interpretation so that it would represent the teachers’ thinking (the reasoning underlying their practical knowledge) was to get their feedback on my interpretation.

As mentioned, there was a seven-month interval between the first and second stages of data analysis. In the first round and in the initial stage of data collection, I analyzed and interpreted the data from semi-structured and stimulated recall interviews of two teachers. In this stage, I categorized the data and provided a short report and interpretation of categories. Then, I sent the report and the categorization in concrete language to the two teachers mentioned in order to get their feedback. To do this we had a focus group, in which we discussed the report and the interpretation. I recorded the discussion and then incorporated the teachers’ views and feedback into the interpretation and categorization. The most contentious part of the interpretation was at the word level where the teachers suggested some ideas about “phrases,” “terms,” and “concepts” that I had developed to represent the meanings and content of categories. However, they generally believed that the interpretation made sense, and thus, “they could see and find their practical reasoning” within the interpretation. This was the explicit and systematic way of checking my interpretation from the participants’ perspectives.

In addition, during data collection with the other participating teachers I used the same technique, but in less explicitly systematic way. As mentioned in chapter 3, I tried to transcribe all the interviews the day they were done. While transcribing, I made my initial interpretation about the data and their potential categories. This kind of interpretation was general and as not yet formed into categories, but it contained sound meanings about teachers’ perceptions and could provide a useful, practical help for forming categories and making final interpretations. In the next possible, scheduled observation of the teachers’ classrooms, I discussed this initial and universal interpretation that had been drawn from their previous interviews, and generally asked if
the teachers could see their views in the interpretation. This discussion was also audio-taped and incorporated into the final data interpretation.

The two actions described above may reflect the method that Lincoln and Guba (1985) called “member checking and describing it as “the most crucial technique for establishing credibility” (p. 314). In qualitative research (e.g., phenomenography) wherein the research mainly relies on the participants’ conception and understanding of the research phenomenon, member checking is very important. Because the main source of data in the present research was the teachers’ understanding and explanations of the research problem, I used this technique.

7.3 Consistency of data collection and analysis methods with the knowledge claims of the research

Even though I believe that there are no clear-cut rules and methods for different knowledge claim assumptions and research paradigms and researchers may use some degree of flexibility in choosing data collecting and analyzing methods, it is still important to show how the methods chosen are consistent with the knowledge claim of the study. As discussed earlier, the present research aims at describing “something” about teachers’ practical knowledge and has its theoretical roots in constructivist paradigms, specifically social constructivist paradigm. “Constructivists believe in pluralistic, interpretive, open-ended, and contextualized (e.g., sensitive to place and situation) perspectives toward reality” (Creswell & Miller, p.125). From this perspective and in regard to the present research, producing useful knowledge is not solely the property of the educational researcher or teacher educators; teachers too can actively construct their knowledge. Thus, in order to understand the different aspects of practical knowledge, which is mainly the property of teachers, researchers should rely primarily on the research methods that aim at describing the phenomenon from the teachers’ point of view.

The main data collecting tool was the interview, one of the useful ways to describe a research phenomenon from the participants’ point of view. Moreover, during the data analysis and in two different ways, I tried to incorporate the teachers’ perspectives into the findings by “member checking.” However, it might be point of discussion whether the participants’ perspectives should be integrated into the results of the study and to what degree and how. This, I believe depends, to a great extent, on the research phenomenon and the research task. In any case it would be a good idea to solicit feedback from the participants about interpretation if the study relies mainly on the participants’ perceptions of the phenomenon.
8 Discussion and implication

8.1 Discussion

The main reason for conducting this study was to describe teachers’ perceptions of the epistemic nature of their practical knowledge. In other words, I wished to encourage teachers to tell me why they use a particular practice in a certain way or why they believe in some particular thing. The results indicated that teachers reasoned about their practical knowledge by using “practical arguments.” Teachers’ practical arguments were found to have a particular structure including six elements (see, for example, Toulmin, 2003, pp. 87–100; Audi, 1989, p. 4) and expressed in four types of cognitive premises (see Fenstermacher & Richardson, 1993) and in affective language, including hopes, fears, and commitment (see Kennedy, 2004). Two elements in the structure of teachers’ practical arguments were important for gaining insight into the nature of teachers’ reasoning and thus the epistemic nature of their practical knowledge: contextual grounds and the epistemic conditions of practice.

Within the conceptual framework of their practical arguments, teachers mainly relied on contextual grounds (see, e.g., van Goor et al., 2004), which call for an action to be “done” or not done in light of a practical judgment. As the data suggest, the contextual grounds were found to be a sort of baseline on which teachers relied to justify their practical knowledge. Associated with the concept of “warranted assertibility,” contextual grounds indicated that in teachers’ practical reasoning the correspondence of their beliefs to those of the external world was not the point. Instead, the point was the interdependency of their practice and its supporting practical knowledge and any given context in which they worked (see, e.g., Boyles, 2006). This accords with Kennedy’s (2004) notion, according to which, “at any given moment, one intention may become more prominent in the teachers’ reasoning” (p. 27).

My findings showed that teachers used three distinct types of contextual grounds—the professional context, the situational context, and the personal context—in order to support their practical knowledge. Professional and situational grounds indicated that the teaching context is bound up with pedagogical obligations, on the one hand, and restricted by situational pedagogical variables, on the other hand. This phenomenon turns teaching into a “distinctive profession” that calls for particular courses of practice and knowledge; thus, the teachers argued that their actions and beliefs are justified if they accord with these pedagogical obligations and cope with these situational restrictions. Personal context referred to the particularity in the teachers’
understanding, and it is based on the phenomenological assumptions that each teacher as a person has experienced a distinctive life; different individuals thus have particular understandings of meanings, which may differ from the understanding of other individuals (see also van Goor et al., 2004). Therefore, contextual grounds were found to deal with “what” information or the reasons teachers proposed to justify their practical knowledge. However, the findings indicated that there was an implicit or sometimes explicit value or function embedded in the intentions related to the contextual grounds. This value or function deals with “why” teachers relied on a particular ground to justify their practical knowledge. In this research, I called these values or functions epistemic conditions of practice.

From the practical argument perspective, the epistemic conditions of practice warrant contextual grounds in relation to practical knowledge claims. Epistemic conditions of practice have higher epistemological power than only that of contextual grounds. Epistemic conditions of practice are also more acceptable by others, while contextual grounds have their roots in various contextual meanings of teaching. From this point of view, as has been argued (e.g., by Fenstermacher, 1994; Feiman-Nemser & Folden, 1986) the situational character of teaching does not relieve teachers and teacher educators in showing how teachers’ knowledge claims are “objectively reasonable beliefs.” Thus, epistemic conditions of practice may function as the epistemological tool that links contextual grounds to practical knowledge and indicates how these epistemic conditions are objectively reasonable beliefs. The data suggested that teachers warranted their contextual grounds in regard to their associated practical knowledge claims with two significant types of epistemic conditions of practice: “morality” and “effectiveness of action.” Effectiveness of action in turn was presented in two distinct ways: authentic efficiency and naïve efficiency.

Morality was based on “moral care”: the core value of moral care was the tenet by which teachers’ pedagogical practice “should not harm students.” Teachers were found to be committed to this principle by “being fair and respectful” toward students and by trying to nurture their whole character as human beings. This type of epistemic condition of practice is in accord with those moral theories by which human beings are considered as having intrinsic worth. From this perspective, even though “the practice of teaching is [a means primarily] intended to bring about learning in students… [.] the ‘bringing about of learning’ and the ‘learning’ cannot be meaningfully separated” (Hansen, 2001, p. 830; see also Gudmundsdóttir, 1990; Lampert, 1990). Moral care in this sense shows that teachers’ so-called “manner” is important to consider in teaching practice. In this sense, “it is not only students’ rationality that must be respected; students need and want teachers to care for them
as persons and to convey this care through listening and responding to their expression of concern. The teacher as a person is centrally important in teaching…the teacher sets an example with her whole self; her intellect, her responsiveness, her humor, her curiosity…her care” (Noddings, 2003, p. 244, see also Audi, 2006, pp. 139–140; Fenstermacher, 1990, 1992). Moral care was found to be based on “a one-sided feeling coming from teacher’s side. [This feeling is] a teacher’s pedagogical love (that) can be a foundation for pedagogical friendship which is reciprocal relationship between teacher and her pupils” (Kakkori & Huttunen, 2007, P. 27).

Authentic efficiency of action was based on “caring pedagogy.” The heart of such a notion was to bring about learning in the students’ life by conducting careful or effective pedagogy. Teachers tried to realize this professional obligation by means of two significant personal standards or principles: “pedagogical inclusion” and “pedagogical accommodation.” In other words, the teachers believed that an action or a piece of practical knowledge is good provided it aims at, or has the epistemic condition of, engaging all students in the learning activities through accommodating their potential differences. To bring about learning for students or to improve their intellectual properties was found to be the main epistemic character of this type of reasoning. Thus, in effect any practice and practical knowledge were supposed to be effective in developing the intellectual character of students: such practices and knowledge were supposed be based on pedagogical accommodation. This notion is in accord with Oser, Dick, and Patry’s (1992) perspective wherein effective teaching is seen as a morally responsible practice in which teachers’ are responsible for developing intellectual and moral characteristics of their students. Drawing on these authors, Hansen (2001) argues that “the concept of effective pertains to sound instructional methods …[and it] emphasizes the intellectual nature of all good teaching and the extent to which it should embody…responsible teaching takes consideration of students’ capacities and interests, rather than perceiving them as empty vessels into which knowledge must be poured” (p. 834).

From the perspectives of morality and authentic efficiency, the good practical knowledge of a teacher reflects the ethical dimensions of teaching whereby teachers use “moral care” and “caring pedagogy” to improve the “intrinsic good” and the “intellectual qualities” of students. Associated with the phronesis-praxis perspective, moral care and caring pedagogy indicate that the concept of “care” is placed at the core of teachers’ practical reasoning (see e.g. Carr, 2004, 2005; Carr & Kemmis, 1986; Dunne, 2003, 2005; Hamilton, 2005; Kemmis, 2005; Noddings, 2003; Schwandt, 2005). Thus, the teachers’ practical knowledge epistemologically represents the praxial status when they use the concept “caring pedagogy” and “moral care” in their rea-
soning to warrant their practical knowledge. According to this perspective, teaching is a kind of praxis (i.e., practice) that has an end (i.e., good) in itself, and thus it should deal with the issues and principles embedded in praxial knowledge. In the praxial notion of practical knowledge, teachers use what Pendlebury (1990) calls “constituent-to-ends” reasoning whereby the means and ends stand in reciprocal positions to each other—meaning that the “means” are not technically isolated from the “ends”. Rather, the concept of care is embedded in both means and ends and places them in a mutual position so that the means constitute the ends. Thus, each course of a teacher’s practice and any pedagogical decision have an “end” (i.e., a good) in themselves. The findings, however, showed that not all of teachers’ practical reasoning was warranted by “care.” The epistemic condition called “naïve efficiency” suggested that the teachers sometimes failed to reflect on the ethical or moral dimensions of their practice.

By naïve efficiency, teachers primarily wanted to implement an effective action to manage and regulate their teaching practice, not to bring about learning for students, by espousing the principle of “regulating pedagogy,” e.g., “what works,” with ignorance about what did not work. In cases corresponding to this type of epistemic condition of practice, teachers applied the kind of pedagogies in which the differences in the students’ interests and capacities were ignored. Thus, teachers tried to assimilate most of the students’ differences in their established pedagogical framework and rules. In such cases, the temporary solution for coping with a situation and producing some intended results was important, regardless of the nature of the means. Therefore, teachers tried to consider some means with which to bring about the possible results without enough reflection about whether their means reflected the concept of “care.” It seems that in such cases the nature of teacher reasoning was based on a “rationalization” process whereby teachers failed to understand and recognize the “salient” features of the case (Pendlebury, 1990). Hansen (2001) argues that this concept of teaching has its roots in utilitarianism wherein the consequence of an action is important to consider and not the intentions, principles, beliefs, and values. From this perspective, teachers’ practical knowledge represents an epistemic status called “practicable knowledge” when teachers use rules embedded in naïve efficiency to warrant their practical knowledge and its possible contextual grounds. In this way, teachers use means-to-end reasoning whereby the notion of means is isolated from ends, thus teachers’ practice may not include any “internal good”.

Based on the epistemic conditions of practice and drawing from Audi (2006), I would like to argue that in the teachers’ practical reasoning there are two kinds of obligations running their decisions and actions: “prima facie
obligations” and “master obligations”. In *prima facie* obligations “to each obligation (or duty), there corresponds a principle to the effect that we (morally) should fulfill it. The ‘should’, however, like ‘duty’ as Ross used it, does not designate the presence of a final, i.e., overriding, moral obligation, but rather that of a morally significant ground for action which will yield a final obligation if not outweighed by any other equally strong or stronger set of moral grounds” (p. 139). Master principles can support final moral obligation in a way no single *prima facie* can. On master principle theories, any *prima facie* principle owes its authority from the master principle. The findings suggested that there were two basic master obligations corresponding to the teachers’ practical argument: “creating happiness” for the students, and “removing pain.” In turn there were three associated *prima facie* obligations for fulfilling the master obligations: moral care, caring pedagogy, and regulating pedagogy. In most cases, the *prima facie* obligations of teachers were found to be related to caring pedagogies (i.e., conducting pedagogical inclusion and accommodation to foster the learning capacity of students); however, these caring pedagogies were outweighed by moral care and regulating pedagogies, depending on the different situations and contexts the teachers faced. In other words, in teaching practice, the main, basic, and most extensive *prima facie* obligation of teachers is to improve the intellectual properties of students, i.e., to bring about learning, which in turn meets the demands of teachers’ master obligation, i.e., to provide happiness for students or remove pains. However, this main *prima facie* obligation is replaced by two other mentioned obligations namely moral care and regulating pedagogy. It means in the situations corresponding to moral care and regulating pedagogy, to bring about learning is no longer the main point, i.e., the *prima facie* obligation, but the intentions associated with moral care and regulating pedagogy become more important and thus become the new *prima facie* obligations for teachers. However, these two new obligations do not have the same epistemic value in fulfilling the demands of master obligations of teaching. While moral care, in addition to caring pedagogy, is relevant for fulfilling the teachers’ master obligations, the regulating pedagogy was mainly based on a rationalization process and thus may not be fully relevant for bringing about happiness for students and removing pain.

The findings suggested that the differences in the teachers’ practical reasoning and thus their corresponding *prima facie* obligations were related, among other things, to the form, content of practical knowledge, personal pedagogical belief systems, and different situations in the classroom. For example, in cases corresponding to the classroom management, the teachers primarily warranted their practical knowledge based on naïve efficiency, i.e., regulating pedagogy. This means that the teachers saw the context of teach-
ing as volatile, and thus, they needed to take different courses of actions with different natures. Therefore, along with Pendlebury (1990), I argue that “the world of teaching is characterized by three central, related features: mutability, intermediacy, and particularity” (p. 175). Because of these inevitable characters, teachers use both “effective” and “moral” reasoning in their work. Thus, in many situations teachers’ lines of reasoning may conflict with one another and therefore, many examples related to effective teaching conflict with moral reasoning. In her study, Kennedy (2004) found that “not only are teachers’ intentions numerous and diverse, but they often contradict one another, so that it would not be logically possible for teachers to actually achieve all the things they intended to do” (p. 28). Thus, as Shulman (1987) argued, teaching is both an effective practice (i.e., what teachers are able to do) and a normative practice (i.e., what teachers ought to do). In the present study, I found that the teachers’ “praxial knowledge” calls for responding to the normative demands of teaching, and “teachers’ practicable knowledge” calls for responding to the effective demands of teaching contexts. As a concluding note to this section, I would like to add that practical knowledge including these two epistemic statuses is a balancing professional cognitive tool that makes the complex work of teaching possible: *it establishes a practical balance between pedagogical opportunities and contextual restrictions.*

A further significant line of research based on the findings of the present study would be to examine how teachers can develop their practical knowledge, thus may move from the practicable status to the praxial status.

### 8.2 Implication

The explicit task of this research was to gain insight into the epistemic nature of teachers’ practical knowledge by addressing the reasoning that lies behind practical knowledge. The implicit intention and meaning of this task was to determine whether all so-called practical knowledge is good or does it carry with different epistemic weight. In any case, what to do or what can be done? The results of this study indicated that in most situations, teachers have sound or good reasoning to support their practical knowledge; however, there are situations in which they use poor reasoning to support their practical knowledge. In the language used in this research, teachers’ practical knowledge has higher epistemic worth when it is based on principles embedded in praxial knowledge in comparison with principles based on “practicable knowledge.” This means that the teacher educators and policymakers should try to educate, or at least provide the grounds for prospective and in-service teachers to develop their practical knowledge and their pedagogical thinking in line with
praxial knowledge. The question still is how teacher educators and policymakers educate teachers (in-service and pre-service) to get in line with praxial thinking and knowledge in their jobs.

One direct solution is to use the results of this research as one category of a knowledge base for teaching. Even though the results related to “contextual grounds” are mainly associated with particular situations, contexts, and people, the conceptual framework related to the “epistemic conditions of practice” and the “epistemic status” of practical knowledge is more universal and has been built up on the existing moral and educational theories of teaching. To use the results of this research in educational contexts such as schools and teacher training programs may help teachers to be more reflective in their teaching by conducting “reasoned-based teaching.” In other words, by engaging in discourses such as “teachers’ practical arguments”, teachers’ pedagogical reasoning, and praxial and practicable knowledge teachers may be motivated to reflect on the reasoning that lies behind their actions and beliefs, and thus evaluate their feeble reasoning themselves.

In addition, this study as a “discourse” may provide methodological ground for policymakers to bridge the gap between theory and practice. This can be done through elicitation and reconstruction of teachers’ practical arguments by cooperation with a person who is typically called the other, and plays the role of the teacher’s dialogical partner (Fenstermacher & Richardson, 1993). The other (e.g., a researcher, a teachers’ mentor, an educator) has expertise in the field of teaching with sustainable theoretical and empirical understanding of how a classroom functions and how students learn. The other helps teachers find their weak practical arguments and then reconstruct it by means of existing theories of teaching and learning and the results of research. In this way, the teachers can use the theories and results of empirical research in practice. This process of elicitation and reconstruction can also be done by a community of teachers. Teachers, for example more experienced teachers, can observe the classroom of their colleagues in school and then provide a discussion session to review each other’s actions and beliefs. I should point out here that in the course of this research, and the interviews with participating teachers, the teachers acknowledged the positive and pragmatic effect of the “procedure” and the “discourse” embedded in the interviews, which were based on practical argument related to their thinking and actions. The teachers appreciated that there were many things they had never reflected on; however, during the interviews they found that those things could be improved. This indicated that the “practical argument discourse” has a normative function and applications in different ways; thus, it can help teachers reflect on and improve upon their practice.
From the theoretical perspective, this study has application for educational researchers. Adopted from different practical argument models, it provides a genuine conceptual framework and a model for studying teachers’ practices and knowledge from different angles. The model suggested in this research has six important elements, each with a different function. It would be helpful to study these elements in regard to different variables in the teaching context and in regard to teachers, for example, how teachers’ pedagogical belief systems and their epistemic conditions of practice are related to the subject they teach. Also, this research proposed a particular understanding of teachers’ practical knowledge wherein there are two epistemic statuses: *praxial* and practicable knowledge. This study also shifted the description of teachers’ practical knowledge from the more-emphasized experiential picture to a multi-dimensional entity, which has the dimensions of “source,” “process,” “cognitive form,” and “function.” Thus, depending on which dimension educational researchers wish to explore, they may deal with different methodological and theoretical preferences. For example, when researchers primarily describe practical knowledge as the experiential knowledge that teachers have developed through their experiences, they may need to show methodologically how to isolate teachers’ experiential knowledge from other kinds of knowledge, such as the knowledge learned in teacher training programs.

The other theoretical implication is to serve as a basis for obtaining more insight into the “means and ends” discourse on teaching. This research identified that teachers see teaching as a kind of practice or *praxis* in most cases of their practical arguments. From this perspective teaching has internal good since the teaching activities must be supplied by “care” namely moral care and caring pedagogy. This means that the goods (i.e., moral care and caring pedagogy) embedded in means (i.e., teaching activities or pedagogies) must be in a reciprocal relationship with ends (e.g., to bring about learning for students). Moreover, the research showed that teachers, in many situations, see teaching as a kind of means to bring about some intended results, regardless of whether the means or teaching activities are sound.
Summary

Over the past three decades, progressive theories have emerged regarding teachers’ professional development programs. Such theories have made new assumptions about the roles of teachers: teachers are seen not just as decision-makers, but also as actors who actively reflect on their actions and, accordingly, construct their own theories. This view acknowledges that generating knowledge about good teaching is not the exclusive property of university researchers, and it recognizes that teachers also have theories that can contribute to a codified knowledge base for teaching. Despite different terminology, teachers’ practical knowledge has frequently been used to reflect the knowledge that teachers develop as a result of their experiences. A critical review of the literature shows that there is no solid agreement about the concept of practical knowledge. Practical knowledge is a multi-faceted concept that is comprised of various characteristics. In this research, while the social, experiential, and personal orientations of practical knowledge are acknowledged, this knowledge is mainly defined and examined in terms of its functions. The function of teachers’ practical knowledge is to guide their actions when they encounter the critical question, “What should I do in this particular situation?” Therefore, regardless of what sources (e.g., professional experiences, meta-knowledge such as social values) from which it benefits, teachers’ practical knowledge is defined to include all teachers’ cognitions (i.e., beliefs, values, motives, procedural knowing, etc.) guiding their actions.

Teachers’ practical knowledge has become a significant field of inquiry into teachers’ thinking and knowledge research. It has, however, been questioned on epistemological grounds: how do teachers know what they do or believe in are sound? On what grounds, or more practically on what kinds of reasons do teachers rely to justify their practical knowledge? In line with this argument, the present research addressed the epistemic nature of teachers’ practical knowledge. The main source of insight into this task was the teachers’ reasoning. In other words, the main question of this research was to gain insight into the reasoning (i.e., the structure, the nature, and the patterns of teachers’ reasoning) that lies behind teachers’ practical knowledge.

Because the contents and categories of teachers’ practical knowledge were found to be extensive, and may not deeply and properly be studied in a single Doctoral project, general pedagogical knowledge was mainly considered to be the object of this study. In practical term, I studied the epistemic nature of teachers’ general pedagogical practical knowledge. Drawing on existing literature and based on a preliminary investigation, I identified the categories and themes of teachers’ general pedagogical knowledge. Three
main themes were considered to represent teachers’ general pedagogical knowledge: practical knowledge about teaching and learning concepts, practical knowledge about classroom management, and practical knowledge about instructional strategies. With this description, I studied the epistemic nature of practical knowledge of six class teachers in the metropolitan area of Helsinki over an 18-month period during two academic years. The main reason to prolong the data collection procedure was to be able rely as much as possible on teachers’ perceptions and understanding of researched phenomenon. This indicates that the main research strategy was “phenomenography.”

Phenomenography is an empirical research tradition that studies the individuals’ understanding, perceptions and conceptualizations of the world around them. This research strategy aims at description, analysis, and the understanding of experiences, that is, research directed toward experiential description. The choice of this strategy was in line with the knowledge claims theories and paradigms of the study. As mentioned, from a practical knowledge perspective, teachers are the individuals who can construct the knowledge for conducting their practice; thus, it is possible to gain insight into the epistemic nature of this type of knowledge by studying teachers’ perceptions of it and meanings given to it. In addition, in line with the main research strategy, the main tools for collecting data were interviews (semi-structured and stimulated recall interviews) and observations. Using Toulmin’s (2003) model of argument and Fenstermacher and Richardson’s (1993) work, a conceptual framework was developed in order to begin data analysis in an abductive procedure. This conceptual framework could help provide a preliminary map for conducting data analysis with a “general” perspective on teachers’ arguments; thus, it helped provide insight into the structure of teachers’ practical arguments. I then did a further line of data analysis relying on the “content specific,” and thus used an inductive procedure. This phase of the data analysis helped gain insight into the nature of teachers’ reasoning. During the qualitative data analysis, I found patterns in the structure of teachers’ practical arguments. In order to examine these patterns, I “nested” a quantitative analysis into the qualitative findings to see how different elements of teachers’ practical argument are associated with each other.

With regard to the first main research question, the results indicated that the teachers’ reasoning that lies behind their practical knowledge can be conceptualized within the framework of “practical arguments.” Each unit of teachers’ practical arguments then was found to be a coherent argument in favor of a practical judgment that something should or should not be done. Two significant dimensions of teachers’ practical arguments were identified: the elements and the forms of expression of the practical arguments. The
elements showed that teachers’ practical arguments have different layers of meaning; thus, each element illuminates a part of the whole, and everything altogether turns the argument into a coherent unity. Knowledge claim, and in this research practical knowledge claim was found to be the core of argument, and other parts are somehow organized around this practical knowledge to justify it. In most cases, the knowledge claim was explicit and had different degrees of inclusion, from claims in a particular case in a given situation to an extended image about teaching. Sometimes the teachers had a complementary or totally counterbalancing theory to the main knowledge claims for which they argued. In these cases, they assumed that the main or original knowledge claim may fail in one or more ways to fulfill the intended goals. This phenomenon was called the “but-pedagogy” because most of the time the teachers expressed the counter assertion by using the word “but”: “good teachers must be strict in the classroom, ‘but’ students should also be given enough freedom.” “But-pedagogy” was one of the important elements in escalating the quality of practical arguments.

While knowledge claims in any state were important for organizing the argument, the grounds (contextual grounds) and the epistemic conditions of practice were the most important elements in gaining insight into the nature of teachers’ reasoning because these were presented in order to justify the knowledge claims, although in different ways. The immediate element for justifying knowledge claims was the grounds. From a practical argument perspective as described in this study, the grounds are explicit information, and in this study, explicit “reasons” that teachers rely on in order to justify their knowledge claims. It could be asked “what reasons” teachers provided to support their practical knowledge. However, the grounds are only reasons, and teachers’ reasoning cannot fully be understood by examination of these grounds. In the data, I found that there was an implicit epistemic “value” or “weight” that could relate the knowledge claims to the grounds. This value indicated why teachers justified their practical knowledge with a particular set of grounds. I called this element the “epistemic conditions of practice” because it shows that teachers do something if it is useful in guiding their actions. This means that for teachers, something is epistemologically good if it has particular conditions, i.e., it reflects some values or functions in the minds of teachers. In some cases, the argument embedded in the elements of the knowledge claim, the grounds, and the epistemic conditions of practice was supported with additional backing. Backing stands as a particular element, since it has a different function and role in the argument: it aims at establishing an argument that is more objective to others to accept or reject. The meanings and ideas embedded in the entire practical argument could represent the teachers’ implicit theories of teaching and learning. These theo-
ries were found to be the teachers’ belief systems consisting of more or less “independent” dimensions that vary along a continuum from simple beliefs to sophisticated theories about teaching and learning. In other words, the teachers were found to have both naïve and authentic beliefs independently in their belief systems. This is called the teachers’ pedagogical belief systems, and it is very important to study in research on teachers’ thinking.

Therefore, from the perspective of the structure of teachers’ practical arguments, I found six intertwined elements: the knowledge claim, the “but-pedagogy,” the grounds, the epistemic condition of practice, the backing, and the pedagogical belief systems. In addition, the practical arguments were found to be expressed in two distinct forms: cognitive and affective. The cognitive form of expression was in accordance with Fenstermacher and Richardson’s (1993) model in which teachers were found to express their arguments with four different types of premises (and an action or the intention to act): value, stipulative, empirical, and situational. In this research these premises were easily identified in the teachers’ practical arguments; however I found that sometimes the value premises and the situational premises overlapped the other premises. While these premises were mainly cognitive and carried epistemic weight, an affective form of expression of the practical argument indicated that teachers had different feelings and emotions in different types of reasoning. Hopes, fears, and commitment were three significant forms of feeling that teachers had when they discussed their practical knowledge. The elements and forms of expressions represented the structure of teachers’ practical arguments; however, I studied the nature of teachers’ reasoning in order to obtain insight into the epistemic nature and thus the epistemic status of their practical knowledge. The grounds and specifically the epistemic conditions of practice were two important elements for meeting this goal.

The findings related to the grounds showed that teachers used a contextual system of justification, including professional context, situational context, and personal context in order to support their practical knowledge. Professional context refers to the fact that teaching is bound up with pedagogical obligation. In this case, teachers frequently relied on the “pedagogical character” of teaching as representing a particular context in which they needed to provide a sound teaching-studying-learning environment: teachers may maintain that they believe in or do something because it is based on their pedagogical obligations and because it enriches the learning environment in a way that students can better learn and teachers can act more effectively. Two inclusive categories of professional context were initiating and preventing pedagogies. The trend of action in initiating pedagogies is to “accomplish” something, even though it may be associated with a degree of risk. In this
way, while teaching situations were running in a normal way, teachers still wanted to improve the learning atmosphere in their classrooms. The preventing pedagogies, however, aimed at “avoiding” something in order to prevent a risky encounter. Fostering skills such as higher order thinking and learning orientations of students, improving active learning engagement in the classroom, and nurturing the character of students were the prime intentions of the initiating pedagogies. Fears about managerial smoothness of the classroom, fulfillment of learning tasks, and negative affective reactions of students were the main intentions of the preventing pedagogies.

The situational context was the second set of grounds on which teachers relied in their practical arguments. From this point of view, each particular classroom is a context and the practice of teaching is based on the situatedness of events in that classroom. Various interventions (e.g., learners’ characteristics) influence teachers’ actions in each particular classroom, and these interventions call for situatedness of different classrooms. The other contextual ground was the personal context whereby teachers justified their actions according to personal experiences and personal views. As mentioned, contextual grounds may not fully reflect the nature of teachers’ reasoning, but the epistemic conditions of practice have a critical role in understanding the nature of teachers’ reasoning.

Two basic conditions because of which the teachers relied on different contextual grounds were morality and efficiency of action; efficiency of action was presented in two distinct ways: authentic efficiency and naïve efficiency. Three important principles are embedded in each of them. The morality is based on “moral care”: the core value of moral care was the tenet by which teachers’ pedagogical practice “should not harm students.” Teachers were found to be committed to this principle by “being fair and respectful” toward students. Obligation to nurture the whole character of the students was another significant epistemic value embedded in moral care. Authentic efficiency was based on “caring pedagogy.” The heart of such a notion was to foster learning in students’ lives by conducting careful pedagogy. Teachers tried to realize this professional obligation with two significant personal standards or principles: “pedagogical inclusion” and “pedagogical accommodation.” In these cases, teachers tried to “accommodate” their internal and their established pedagogical knowledge to the complexity and uncertainty of the classroom situations in such a way that their practice would be effective in establishing a learning environment in which students with different learning capabilities and interests can work and learn. In caring pedagogy, the teachers acknowledged changing or remedying their practice to fit the realities of the teaching context. Naïve efficiency, however, was associated with what was called “regulating pedagogy.” By this argument, teachers primarily wanted to
manage and regulate their teaching practice by espousing the notion of “what worked” with ignorance about what “did not work.”

The epistemic conditions of practice indicate that the contextual character of teaching does not necessarily mean that teachers may do “whatever” they like, but these epistemic conditions may be regarded as the “pedagogical ethics” of teaching by which the others may “objectively” find out how “sound and reasonable” teachers conduct their pedagogical practice. The following premises illustrate the interaction between grounds and epistemic conditions of practice in a practical argument:

As a teacher, I believe in action “A” on the following grounds:

1. It is in accord with my pedagogical obligations embedded in the professional context of teaching;
2. It is embedded in the situatedness of the classroom;
3. Or it is based on my personal experiences.

And as a teacher I believe my grounds are reasonable because:

1. These grounds are in accordance with values embedded in moral care (i.e., the actions associated with these grounds do not harm students and nurture their whole character);
2. These grounds follow caring pedagogy (i.e., the actions associated with these grounds bring about learning for all students using flexible and diverse pedagogies);
3. Or these grounds are based on “regulating pedagogy” (i.e., the actions associated with these grounds manage teaching practices in favor of teachers).

From this perspective, the epistemic conditions of practice are more important than contextual grounds for gaining insight into the epistemic status of teachers’ practical knowledge because they reflect the master “epistemic value or weight” embedded in the contextual justifications of teachers. These epistemic conditions that teachers hold for warranting their practical knowledge show that teachers’ practical knowledge has two shades of epistemic weights: “praxiality” and “practicability.” The former represents praxial knowledge, which originates from the phronesis-praxis perspective on teaching whereby teaching is seen as a practice or praxis with an ethical or moral dimension. Thus, praxial knowledge is related to the cases where teachers used “moral care” and “caring pedagogy” for warranting their contextual grounds and their associated claims. Practicable knowledge deals with “regulating pedagogy” and indicates that teachers were able to put something into practice that worked for managing their practice, but they failed to reflect on
what did not work. *Praxial* knowledge is epistemologically normative, i.e., the practice of teaching can be improved upon, whereas practicable knowledge is descriptive since teachers supposed their argument was a “fair and accurate account of why” they acted as they did (Fenstermacher & Richardson, 1993, P. 104)

The last part of the finding is related to the pattern within the structure of teachers’ practical knowledge, in other words, how different elements of teachers’ practical knowledge are related to each other. Because the epistemic conditions of practice and their embedded principles were more important than the other elements in gaining insight into the epistemic nature and statuses, I did a quantitative analysis to examine the relationship among these three principles with other elements of teachers’ practical arguments. The data suggested that moral care is mainly associated with the cognitive value premises, commitment affective forms of expression, and progressive implicit theories of learning (i.e., students can construct knowledge; learning is a gradual and long-term process). Caring pedagogy was found to have more variation in terms of having relationships with other elements and subcategories of teachers’ practical arguments. Of cognitive form of premises, stipulative, empirical, and situational premises; of teachers pedagogical belief systems, tentative implicit theories of teaching (i.e., teaching needs integrated, flexible, and comprehensive knowledge), and progressive theories of learning; and of affective form of premises, hopes, commitment, and fears statistically had significant relationships with caring pedagogy. Naïve efficiency or regulating pedagogy, however, was mainly associated with situational premises, “fear “as an affective form of premises, and simple implicit theories of teaching and learning (i.e., teaching needs universal and certain pedagogy in many situations; students’ learning capacity is fixed).

In conclusion, I should point out that the findings suggest that there are two kinds of obligations in teaching practice—master obligations and *prima facie* obligations. Master obligations are embedded in the minds of teachers and may implicitly underlie their philosophy of teaching, and these obligations may be regarded as the final ends of teaching practice. The values implicit in master obligations are to bring “happiness” to the lives of students and avoid “pain”. Teachers try to realize these master obligations by means of *prima facie* obligations. *Prima facie* obligations are embedded in teachers’ actions and practical knowledge. In other words, teachers try to realize their *prima facie* obligations by conducting different actions and holding different knowledge claims. The teachers were found to try to realize their master obligations by three kinds of pedagogies or *prima facie* obligations: moral pedagogy, caring pedagogy, and regulating pedagogy. In most cases, the *prima facie* obligations of teachers were found to be related to caring peda-
gogies (i.e., conducting pedagogical inclusion and accommodation to foster the learning capacity of students); however, these caring pedagogies were outweighed by moral care and regulating pedagogies, depending on the different situations and contexts the teachers faced. While moral care and caring pedagogies were relevant for bringing about “happiness” to and removing “pain” from the students lives, the regulating pedagogy was mainly based on a rationalization process and may not have met the demands of master obligations mentioned above. This shows that teachers’ practical knowledge as pedagogical means for fulfilling their master and prima facie obligations, do not have the same epistemological weight. While many of teachers’ actions are relevant to meet the demand of teaching philosophy, it does not follow to assert that whatever teachers do is good because of their situational demands.

A further line of research based on the results of this research would be to study how teachers’ practical knowledge can be improved by moving from practicable status of practical knowledge to praxial knowledge. In other words, how we can help teachers to develop their practice in order to conduct those kinds of prima facie obligations that are relevant for fulfilling the master obligations of teaching, i.e., to bring happiness to students’ lives and remove pains.
References


Appendices

Appendix 1: The general themes and questions of semi-structured interviews

1. Could you please first introduce yourself? How many years have you being teaching and in which grades? How long did you have teachers training? And what is your expertise or your major degree?
2. What stood out for you during the most recent years of your teaching? Either interesting or challenging or problematic.
3. Many people argue that teaching is not a challenging job. How do you think about this claim?
4. What does it mean to be a good teacher?
5. And what does it mean to be a good student?
6. What does it mean to be a challenging student?
7. What image do you have about a good learning atmosphere?
8. What does it mean to be an effective or good teaching strategy? What properties and qualities does a good teaching strategy have?
9. Do you have any overarching or umbrella-type teaching theory that is a basis for your teaching activities? If yes, why you prefer such strategy?
10. How do you represent your teaching materials, for example explaining with examples, (i.e., lessons) so that students can learn these materials? Do you have any specific idea, routine in this case?
11. How important is the discipline and order in the classroom, and how it influence the learning environment?
12. How do you treat with the students who may disrupt the classroom situations or interfere with other students’ tasks?
13. Could you please tell one of your experiences about misbehaving students? What happened? And what did you do?

Appendix 2: The general procedure and possible propping questions to elicit the reasoning behind the main themes in the semi-structured interview

1. Main question: (for example) what does it mean to be a good teacher?
   1.1 (Prop if necessary): if you were trying to convince someone else that your belief on good teacher is right, what evidence you would give to show that this is sound view?
   1.2 (Prop if necessary): Could you please be a little specific and tell me some facts or other reasons that what you just said is true?
   1.3 (prop if necessary) is there anything else that you like to say to show me that what you said is good enough?
2. Do you remember when and how you come to believe so? Do you have any particular experience in your wok that led you to get such view?
Appendix 3: An example of the general procedure and possible propping questions to elicit the reasoning behind the main theme what does it mean to be good teacher?

1. **Main question: What does it mean to be a good teacher?**
   A) I think first of all you have to be quite strict. I mean strict that the kids need to understand that you are the one who tells how to behave, and they have to trust you.
   1.1 Propping Q: (if you were trying to convince someone else that your belief on good teacher is right, what evidence you would give to show that this is sound view?)
   A) Because if you give them too much freedom, they actually, I have experienced that, cannot work. You have to give them the rules: What are we are going to do? And somehow guide them in their work. I don’t, I don’t agree with the fact that you could just give the kids a topic and tell them ok, work with these, they cannot, and they don’t know how to do that. So you have to give them the guidelines. But you have to give them enough freedom. But not too much, because the they cannot work, they need just guidelines such as when they have to finish their exercises, when they have to start, and sometimes give them ideas, if they stuck in some problems, for example in geography and math.
   1.2 Propping Q: Could you please be a little specific and tell me some facts or other reasons that what you just said is true?
   A) Well, the facts that it helps kids to work in classroom and learn better. But it particularly is helpful for the kids who they are really they like to ….., how would explain it? I think it works for every kid, but then again sometimes I know some students could survive with less guidance and they could work more independently, then I let them to work. But then again even the kids who could work really independently it does not matter if I guide them. Then I can for some kids guide them more and for other kids I can guide less because I know they kids are fine, they know what to do, and they are really good at this. Anyway, it depends; I can work with different kids a bit in the different ways.

2. **Do you remember when and how you come to believe so? Do you have any particular experience in your work that led you to learn such a view?**
   A) During my work experiences and just by working; we have different classes each year during five years. Moreover, before I went to study in the university, I worked one year as assistance teacher; there I helped a teacher in the class, thus I saw how the kids work and also I saw how different teachers work in the class and I took it a little bit from different teachers and I saw Ok, this work and this does not work and still I do many things in the class wrong, and after the class I know oh! This did not work. Thus, I learned that the next time I will not do that. Actually I learn all the time each day.
Appendix 4: An example of timetable for each teacher during the data collection

Dear Mr. / Mrs.

Here below, I offer the timetable of our cooperation. Please check every piece of information in the table: we can change whatever date and also the scheduled activities that you feel is not perfect for you. Please tell me, if you need any change in the timetable and its included activities.

We have three types of activities during our cooperation:

1. **Observation**: refers to the activity whereby I only observe your class for 45 minutes and audiotape your teaching.

2. **Observation with stimulated recall interview**: refers to the activity in which I first observe your class while you're teaching for 45 minutes, and then after 1–3 hours, depending on your free time, we will have an interview and conversation about few incidents during your teaching.

3. **General interview**: refers to the activity whereby we will have an interview about your view of general issues related to education and teaching and some related concepts.

Please see the schedule below:

<table>
<thead>
<tr>
<th>Date of Activity</th>
<th>Time of activity</th>
<th>Activity to be done</th>
<th>note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuesday 31.10.2006</td>
<td>10:15-11:00</td>
<td>Observation</td>
<td></td>
</tr>
<tr>
<td>Tuesday 14.11.2006</td>
<td>12:30-13:15</td>
<td>Observation</td>
<td></td>
</tr>
<tr>
<td>Wednesday 22.11.2006</td>
<td>10:15-11:00</td>
<td>Observation</td>
<td></td>
</tr>
<tr>
<td>27.11.2006</td>
<td>12:30-13:15</td>
<td>Observation</td>
<td></td>
</tr>
<tr>
<td>Tuesday 05.12.2006</td>
<td>13:30-14:15</td>
<td>General interview</td>
<td></td>
</tr>
<tr>
<td>Tuesday 16.01.2007</td>
<td>12:30-13:15</td>
<td>stimulated recall interview</td>
<td></td>
</tr>
<tr>
<td></td>
<td>13:30-14:15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuesday 30.01.2007</td>
<td>12:30-13:15</td>
<td>stimulated recall interview</td>
<td></td>
</tr>
<tr>
<td></td>
<td>13:30-14:15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuesday 13.02.2007</td>
<td>12:30-13:15</td>
<td>stimulated recall interview</td>
<td></td>
</tr>
<tr>
<td></td>
<td>13:30-14:15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuesday 27.02.2007</td>
<td>12:30-13:15</td>
<td>stimulated recall interview</td>
<td></td>
</tr>
<tr>
<td></td>
<td>13:30-14:15</td>
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<td></td>
</tr>
</tbody>
</table>

Kind regards