

Docile Bodies and Imaginary Minds on Schön's *Reflection-in-Action*

The concept of reflection has over the past two decades frequently been discussed in education and teaching. At the center of this debate is, and has been since 1983 when it was first published, Donald A. Schön's *The Reflective Practitioner: How Professionals Think in Action*. Schön's concept of "reflection-in-action" is pivotal in his analytical claims as well as in his theory on the reflective practitioner.

In this thesis – *Docile Bodies and Imaginary Minds* – the author analyses the concept of reflection-in-action and the discursive resources on which it is reliant. During these analyses critical issues about thinking, body, mind and practice are highlighted. The author asks (i) is Schön's suggestion "reflection-in-action" valid as an epistemological suggestion for describing and analyzing teacher practice, (ii) how can Schön's concept of reflection-in-action and its use in education be conceived as matters of discourse? This thesis reframes Schön's reflection-in-action. The author argues that the epistemological claims in Schön's theory of reflection-in-action are highly problematic and that his theory of the reflective practitioner is to be recognized as a concept that is interwoven with a particular historical and political technique for the construction of subjectivity.



Peter Erlandson is recipient of a doctoral grant from the Swedish Research Council. In his published articles he has primarily focused on matters of thinking and embodiment (*Reflective Practice* 7.1) as well as on subjectivation and discourse (*Journal of Philosophy of Education* 39.4).



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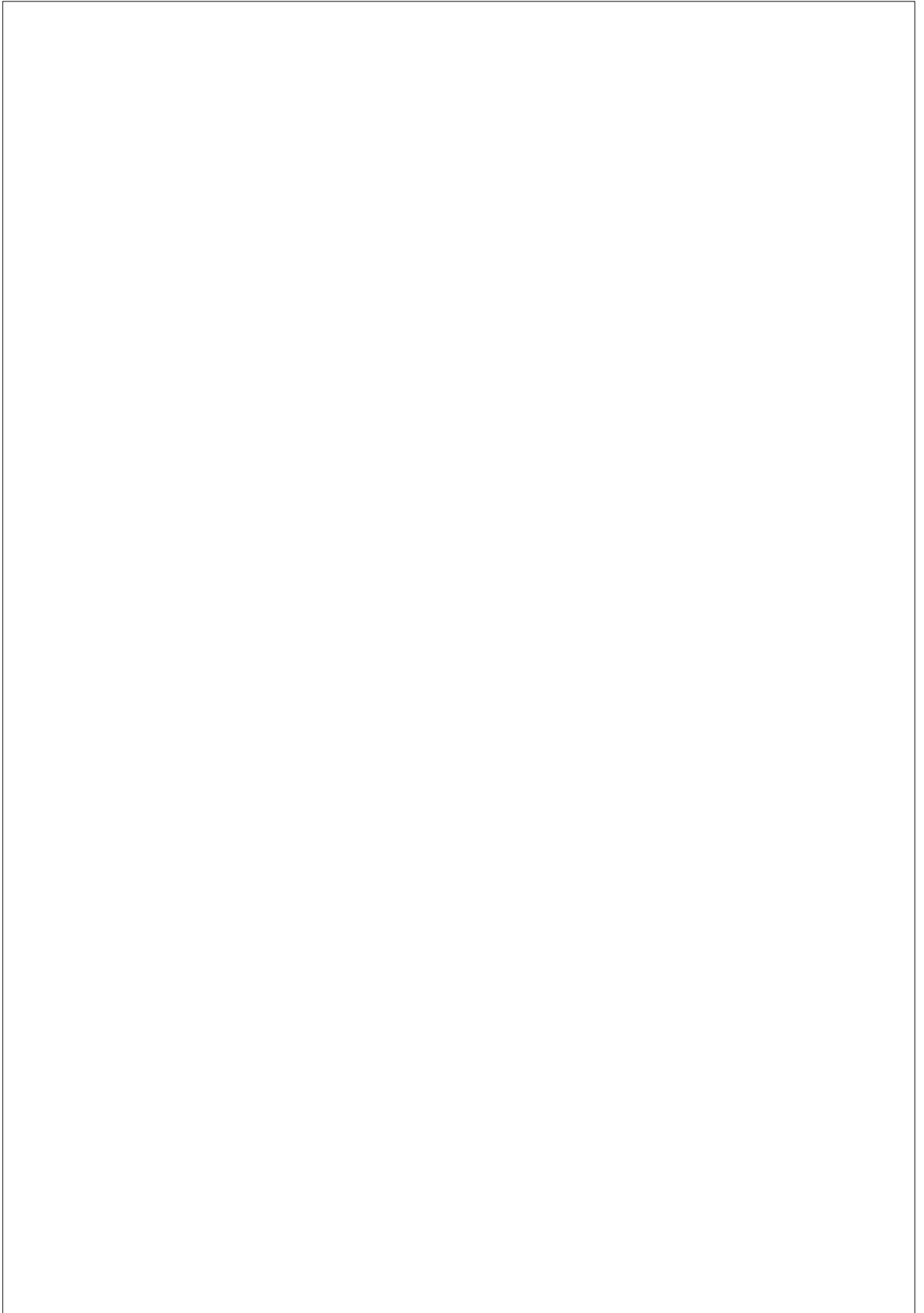
Peter Erlandson

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Peter Erlandson

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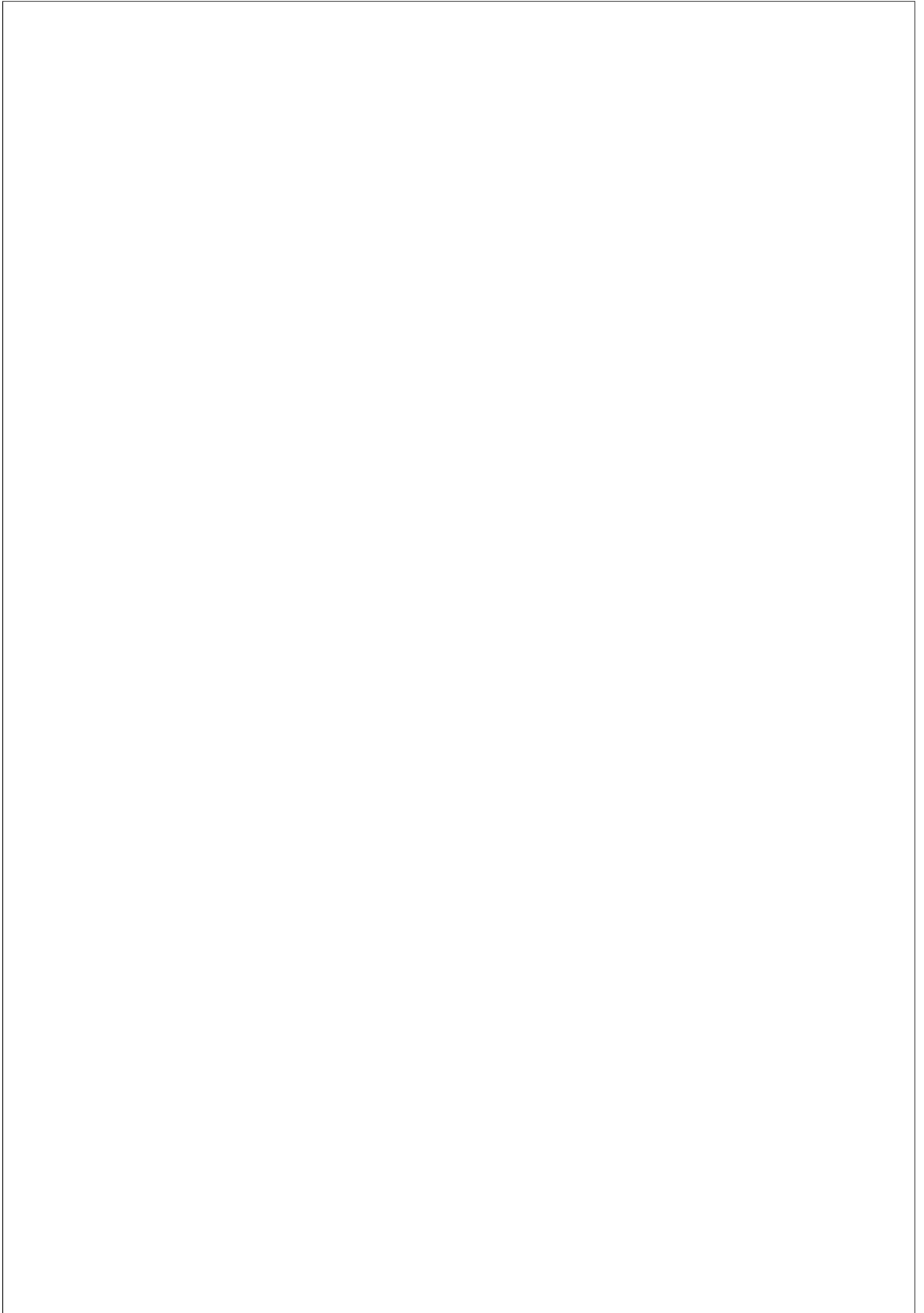
Abstract

The modern debate on reflection in education started in the Anglo-American world at the beginning of the 1980s and spread from there to the Nordic countries. The focus in this debate has been on how professional practitioners, such as teachers and nurses, can use reflection in their professions. At the center of this debate is, and has been since 1983 when it was first published, Schön's *The Reflective Practitioner: How Professionals Think in Action*. A pivotal concept in Schön's discussions, as well as in his theory on the reflective practitioner, is *reflection-in-action*. Schön uses this concept to explain how practitioners develop a certain kind of thinking – thinking incorporated in action – which enables them to accomplish their work.

Schön's reflection-in-action concept is the main focus of this thesis. I analyze the concept as well as the discursive resources on which it relies. In the introductory background section, I first discuss Schön in the modern reflection-field in education and teaching. I then proceed to consider the relevance of Dewey to an outline of Schön's theory of the reflective practitioner. I complete the background section with an introductory analysis, where I use a Wittgenstein-influenced critique by Newman in order to discuss the epistemological validity of Schön's concept of reflection-in-action.

This discussion about Newman's critique is also the point of departure for the four articles in section two in which I develop my main theoretical claims in this thesis. I use two kinds of analytical modes. In articles 1 and 2 I mainly use conceptualizations from Merleau-Ponty whereas in articles 3 and 4 I use conceptualizations from Foucault as analytical resources. These two analytical modes serve the overriding purposes of my study and help me to answer the two main questions that structure the analytical efforts in the articles and in the thesis as a whole. The questions are: (i) is Schön's suggestion "reflection-in-action" valid as an epistemological suggestion for describing and analyzing teacher practice, (ii) how can Schön's concept of reflection-in-action and its use in education be conceived as matters of discourse?

In the first article I claim that Schön's "reflection-in-action" involves a control-matrix which recognizes the "mind" as controlling and the body as obeying, a claim which, if valid, makes Schön's concept highly problematic. In the second article I argue that in the modern reflection debate in education there has been a tendency to interpret Dewey as linked to Cartesian ontology, a link from which Dewey needs to be saved. In article three I reframe Schön's reflection concept and claim that his theory of the reflective practitioner is to be recognized as a concept that is interwoven with a particular historical and political technique for the construction of subjectivity. In the fourth article I argue that the reflection theme may be viewed as a component in a discursive battle about visibility and light.



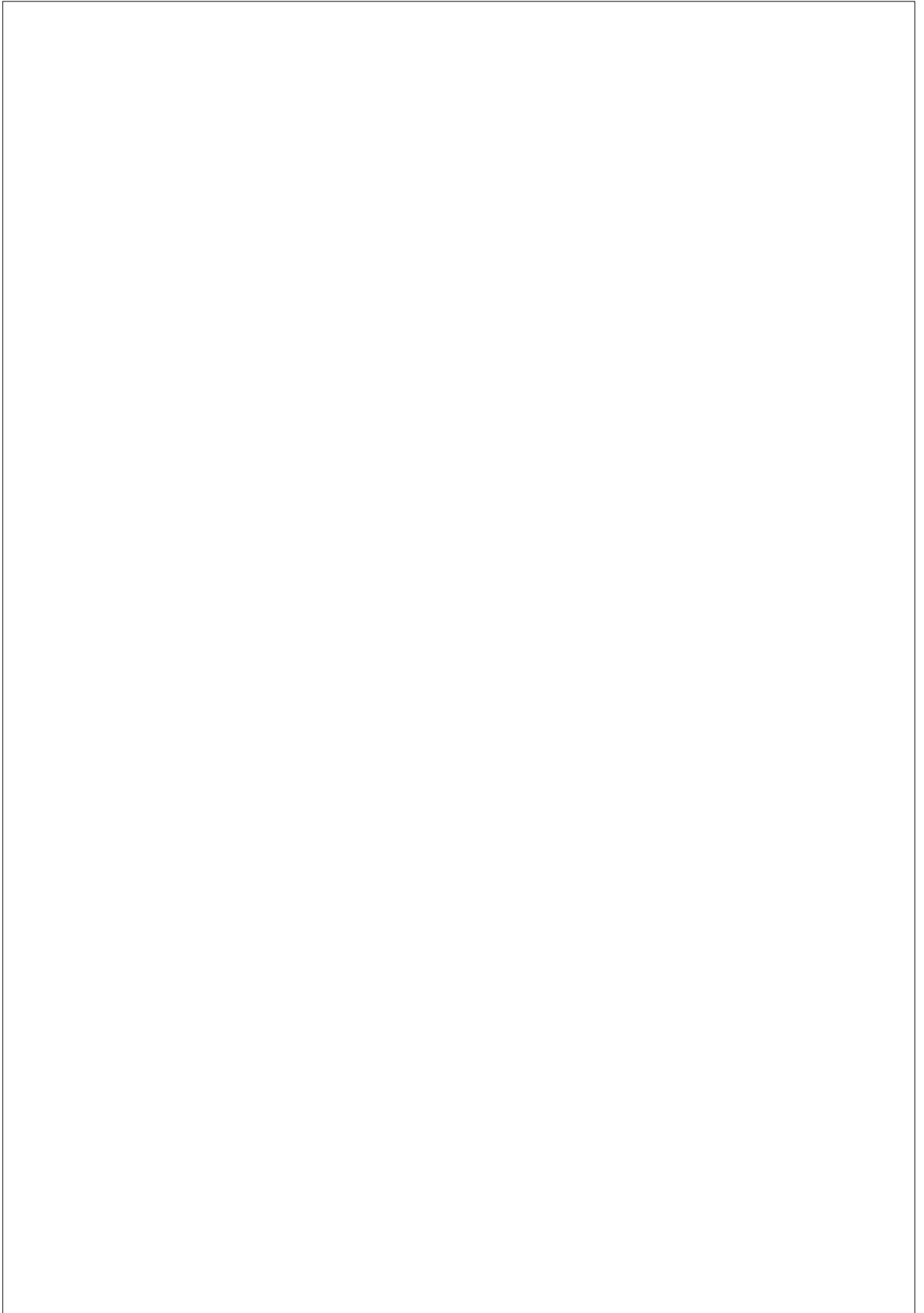
CONTENTS

Part I: Background to the Analyses of Schön's *Reflection-in-Action*

Introduction.....	13
Purpose.....	14
Focus.....	16
Methodological Considerations.....	16
The Rationale of Part I.....	20
Schön and the Modern Reflection Discussions in Education	22
Dewey and Reflection	26
The Primacy of Practice	26
Sociality, Tools and Action	28
Reflection as a Thinking Technique.....	30
Schön's Theory of the Reflective Practitioner	32
Practice and Technical Rationality.....	33
The Professional Practitioner's Reflection	34
Identifying the Control-Matrix.....	36
The Control Matrix	36
Outlining the Articles	42
Imaginary Minds – Articles 1 & 2	42
Docile Bodies – Articles 3 & 4	45
What About Reflection?.....	50
Reflection and Control	50
Reflection as Discursive Event	52
References	57

Part II: The Articles

I Giving Up the Ghost: The Control-Matrix and Reflection in Action	67
II Saving Dewey: Reflection, Thinking Techniques and Discrete Entities	79
III The Body Disciplined: Rewriting Teaching Competence and the Doctrine of Reflection	101
IV Reflection and the Battle of Light	113



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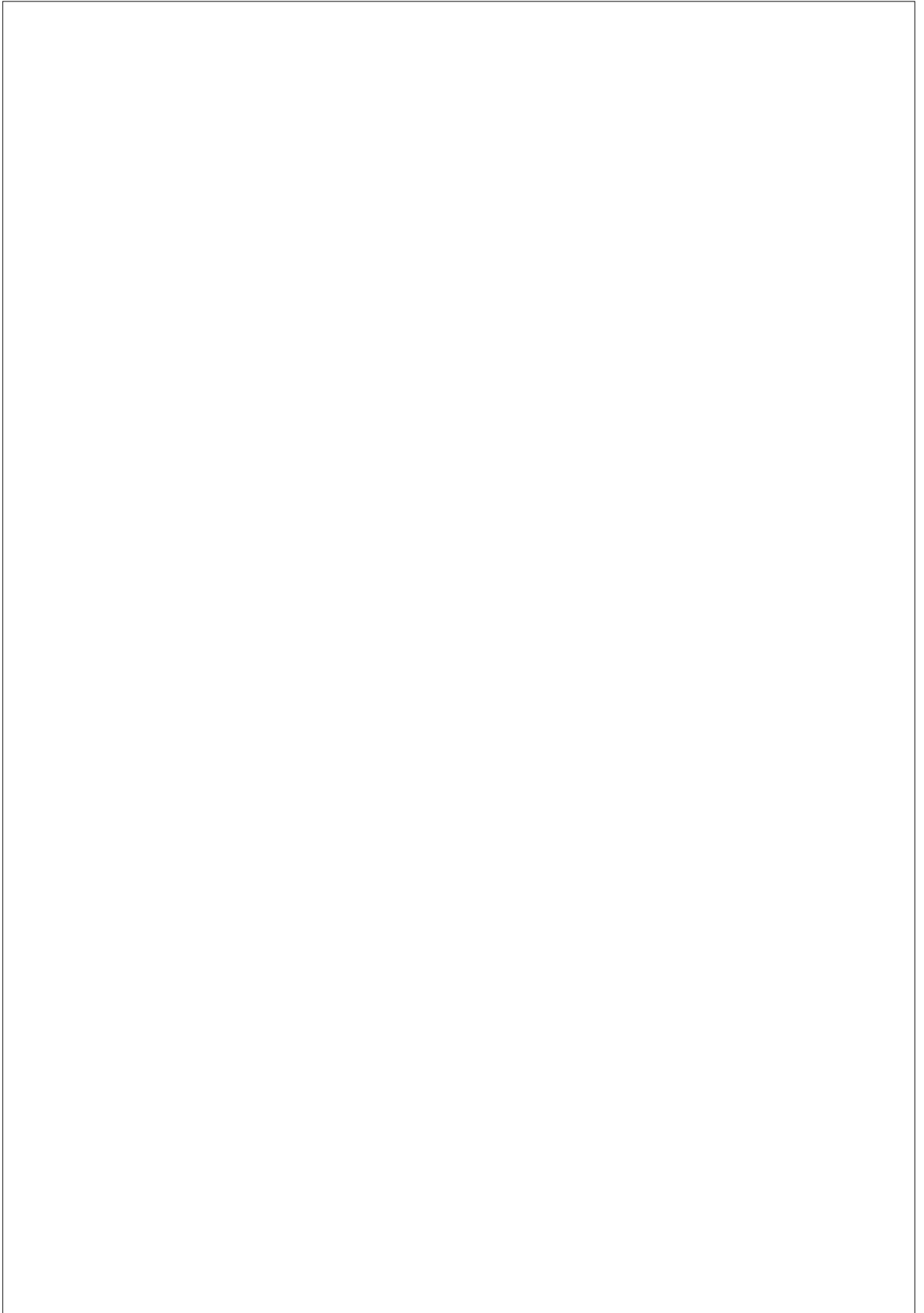
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Göteborg, July 2007

Peter Erlandson

To Julius and Emrik

**Part I: Background to the Analyses
of Schön's *Reflection-in-Action***



INTRODUCTION

Even though many of the themes of the reflection debate, such as thinking, learning and doing and the successive transformation of an individual from a novice to an accomplished participant have been discussed in different forms for centuries in the West, the modern debate on reflection in education is quite easy to identify. It started in the Anglo-American world at the beginning of the 1980s and spread from there to the Nordic countries (Boud et. al 1985; Carr, & Kemmis, 1987; Grimmett & Erickson, 1988; Carson, Zeichner & Tabachinick, 1991; Handal and Lauvås, 1987¹; Bengtsson 1993; Alexandersson, 1994; Rolf, 1995; Molander, 1996). The focus in this debate has been on how professional practitioners, such as teachers and nurses, can use reflection in their professions.

At the center of this debate is, and has been since 1983 when it was first published, Schön's *The Reflective Practitioner: How Professionals Think in Action*², in which Schön uses detailed examples from for instance, an architect's studio and psychotherapy sessions. A pivotal concept in Schön's discussions, as well as in his theory on the reflective practitioner, is *reflection-in-action*. By the use of this concept he explains how practitioners develop their skills - or as he frames it, how they develop a certain kind of thinking that is incorporated in action - which makes them more able to accomplish their work.

Schön's concept of reflection-in-action is the main focus in this thesis and forms a conceptual hub in the main parts of my texts. However, I also discuss other issues, such as for example the recognition of Dewey in the reflection debate. I discuss the metaphysical "material" that is in use in the construction of reflection, as well as the legitimizing resources that this theme in education is dependent on and transfers. I thereby recognize, to some extent, the socio-cultural *landscape* of reflection(-in-action).

¹ 1983 in Norway

² From here onwards abbreviated as "*The Reflective Practitioner*".

Purpose

Already in 1991 Zeichner & Tabachnick pointed out that it is almost impossible to find a teacher-educator who does not emphasize the importance of reflection. As an illustration there are at present 12021 hits in ERIC on the search string “reflection” and the period 2000-2006 contains 3327 articles and conference papers in the same database.

The widespread use of “reflection” as a concept of importance for the development of teacher professionalism coincides with the publications of Schön’s *The Reflective Practitioner* (1983) and the sequel *Educating the Reflective Practitioner* (1987). These texts are extensively referred to and have had a documented impact on education and related fields. However, Schön’s theories have not been unchallenged. Fenstermacher criticizes the inconsistent use of the term “reflection” (Fenstermacher, 1988); van Manen argues that reflection does not describe the differences between novice teachers and experienced teachers (van Manen, 1995) and Newman claims that the whole epistemological account in Schön’s theories has to be rewritten (Newman, 1999).

Moreover, although Schön’s texts are undoubtedly the most important in the research field of reflection in education, there are also other resources that have been used in this debate. Dewey’s texts, especially *How we Think* (Dewey, 1960, 1997), have played an important role as has Aristotle’s *The Nicomachean Ethics* (Aristotle, 1955 [book six]). A consultation of the journal *Reflective Practice* (the first and only major journal dedicated solely to the research field of reflective practice) reveals the wide range of studies involved, including perspectives such as Marxism and post-modernism. Nevertheless, even these contemporary debates and discussions about reflection in education and related problems often start with Schön’s theories and his special concept of “reflection-in-action” which currently generates 111 000 hits in Google.³

³ 2007-07-26

The most fundamental claim in Schön's theory about reflection is that "thinking" is incorporated in practitioners' doing, in their actual, situated, action. This claim is condensed in the concept reflection-in-action. In this thesis, however, I will argue (i) that the epistemological claims in Schön's theory on reflection-in-action are highly problematic and (ii) that the theory of the reflective practitioner is to be recognized as a concept that is interwoven in a particular historical and political technique for the construction of subjectivity. Moreover, I will suggest that in constructing the theory of reflection-in-action Schön uses cultural material that he redistributes in and by his argumentation, and that in this sense the theme of reflection is interwoven in an idiom of transparency and discipline. These reservations about Schön's concept influence the two main questions that structure the analytical efforts in the articles, and in the thesis as a whole. These questions are:

- (i) is Schön's suggestion about the value of "reflection-in-action" valid as an epistemological suggestion for describing and analyzing the content and quality of teacher practice
- (ii) how can Schön's concept of reflection-in-action and its use in education be conceived as matters of discourse?⁴

The purpose of this study is therefore to discuss and criticize not only Schön's concept of reflection-in action but also the metaphysical socio-cultural material upon which it is reliant.

⁴ I primarily use a Foucaultian discourse concept. Weedon points out that discourse in Foucault are "ways of constituting knowledge, together with the social practices, forms of subjectivity and power relations which inhere in such knowledge and relations between them. Discourses are more than ways of thinking and producing meaning. They constitute the 'nature' of the body, unconscious and conscious mind and emotional life of the subjects they seek to govern" (Weedon, 1987, p 108).

Focus

In *The Reflective Practitioner* Schön offers a general discussion on professional practitioners in society, and in relation to this he explicitly raises epistemological issues. But, primarily, he discusses practitioners' practices using examples that in a way structure the text of *The Reflective Practitioner*. These examples are broad and well modulated. They point to the use of artifacts, and to some extent, bodily movement, as well as communication. However, what interests me the most is the textual movements that structure the relation between the general discussions and the examples: that is, the interpretations of the examples that Schön uses in order to construct his theory of reflection-in-action. I am, you might say, primarily interested in how reflection-in-action *works* in Schön's exemplification of human practice.⁵

In the articles I explore some perspectives and discuss a few problems that I find highly relevant in relation to education and to the question of how teacher practice (or any practice) can be explained, understood and framed. The focus of these perspectives is matters of body and mind and the relation between them.

Methodological Considerations

This text is a theoretical study in the philosophy of education. In addition to a background section, it contains four analytical articles in which I develop my theoretical claims. It is primarily by the analyses in the articles that I claim to offer research contributions in this thesis.

I use two kinds of analytical modes in the articles. In article 1 and 2 I use conceptualizations from Merleau-Ponty as main analytical tools. In articles 3 and 4 I use

⁵ I do not, however, have any exegetic or hegemonic ambitions in relation to Schön's texts and conceptualizations. Other interpretations and/or analyses than the ones I present in this text are of course possible.

conceptualizations from Foucault as main analytical resources. This does not mean, however, that I follow either author's methodology. I merely use some of their theoretical framework for my analytical purposes. The two analytical modes serve the overriding purposes of my study and help answering the two structuring questions. I try to answer the question to what extent Schön's theory on reflection-in-action seems valid as an epistemological suggestion with conceptualizations from Merleau-Ponty and how Schön's concept of reflection-in-action can be conceived as matters of discourse by using conceptualizations from Foucault. This methodological procedure is, however, also linked, as we shall see, to how I conceptualize questions concerning ontology and/or epistemology in this thesis.

In the first two articles (and in the main part of the introduction) I discuss ontological and epistemological issues, whereas I discuss political and power-related ones in articles 3 and 4. The reasons for starting with ontological and epistemological issues are quite simple. First, many of the most influential texts in the field of reflection have discussed epistemological (or/and ontological) issues. Examples are Schön (1983, 1987, 1991), van Manen (1991, 1995) and above all, Dewey, who has been recognized as the main influence in the modern reflection debate in education (Dewey, 1997, 1998; Schön, 1983, 1987; Grimmer, 1988). Secondly, even if one may question ontological or epistemological projects as such (as I will discuss later), they have indisputably established their own particular frameworks and developed refined theoretical tools, which efficiently highlight difficulties in the area of knowing and claims in that area. Thirdly, beginning the discussion in the fields of ontology will make it more difficult to undermine the thesis as a whole (with its critique of Schön and part of the reflection debate) by questioning the sometimes controversial claims of Foucault that I use in the later part of the thesis.⁶

⁶ Also, by using Merleau-Ponty in this part of the discussion I point to a major conceptual difficulty of a Cartesian ontogenesis found in Schön's reasoning that I call "the control matrix". This complex of problems is also fundamental in the sections where I use Foucaultian perspectives, even though they are elaborated in a different way. (In "*The Rise and the Fall of the Self*" Solomon discusses the development of the continental philosophical tradition since 1750. Contemporary contributors in the modern debate about subjectivity are for example Deleuze, [1990]; Butler, [1993] and Žižek, [2004].)

In articles 3 and 4, I press the argumentation beyond the limitations of ontology and epistemology and frame matters of reflection as matters of discourse. At this point I am then committed to the workings of reflection as a tool for subjectivation where reflection (reflection-in-action) is no longer an epistemological or/and ontological project alone. The reason for these discussions is illustrated by an example Rabinow gives in his book on Foucault:

Michel Foucault and Noam Chomsky appeared, some years ago, on a Dutch television program for a debate on the topic "Human Nature: Justice versus Power". /.../ Starting from his own research, Chomsky asked: How is it that on basis of a partial and fragmentary set of experiences, individuals in every culture are not only able to learn their own language, but to use it in a creative way? For Chomsky, there was only one possible answer: there must be a bio-physical structure underlying the mind which enables us, both as individuals and as a species, to deduce from the multiplicity of individual experiences a unified language. /.../ Michel Foucault rejects Chomsky's view of both human nature and science. In methodologically typical fashion, Foucault avoids the abstract question: Does human nature exist?, and asks instead: How has the concept of human nature functioned in our society? (Rabinow, 1991, p 3).

The important questions for the traditional lines of reasoning, carried on by Chomsky in the example above, are what the nature or character of something is, or how knowledge about it is possible. Foucault on the other hand focused on how the questions, and the categories these questions are presuming and are derived from, function as frameworks for reasoning about and organizing of institutional practices as well as how these questions constitute legitimizing resources. While the traditional lines of reasoning have been devoted to *describing the order of things*, Foucault is committed to analyzing *how things are ordered by political, historical, lingual and socio-culture conditions*.⁷

⁷ The term "traditional" that I use here is a simplification. By using this term, I do not acknowledge many and vital differences between alternative lines of reasoning. Different philosophical traditions such as phenomenology and analytical philosophy appear to "stand on the same" side so to speak. Of course, this is unfair to both these highly sophisticated systems of thought. My point is not to diminish the importance of these traditions, nor the utterly complex discussions that these traditions have been engaged in over the years. The

Foucault's direction has made it possible to investigate questions from a different perspective (even though Foucault is indebted to Nietzsche [Nietzsche, 1996, 1999; Mahon, 1992], to Marxism [Olsson, 2004] and psychoanalysis). His perspective makes it obvious that questions frame an issue socially, politically and historically, by making some answers possible and others not. An illuminating example is found in discussions on gender (Butler, 1993) and questions of homosexuality. In a "traditional" way of discussing, it is a legitimate question to ask "is homosexuality natural or not"? This implies that it is possible to recognize sexual behavior in terms of "natural" and "un-natural" or "more" or "less" natural. The possible answers to the question are actually "yes" or "no", or possibly something in between: i.e. that it can be argued to be natural or unnatural given certain conditions.

However, from Foucault's perspective the question of whether homosexuality is natural or not is itself an example of a discursive practice, and the urgent questions should instead probably be formulated as "under what social and historical conditions is it legitimate (or "natural") to ask if homosexuality is natural or not"? Alternatively, "what does this question *do* and what has it *done* in our society"? i.e. "what social practices, what institutional activities, what organizations of society does this question contribute to legitimate and distribute?"⁸ Foucault's shift therefore reframes questions of ontology and epistemology as questions of politics, power and social-cultural conditions.

discussion here is pedagogical and communicative. Like Rabinow, I am making a point. I am illustrating the fundamental turn of Foucault that I use in the later part of this text (for a parallel discussion see Tylor [1991]).

⁸ The question, "is homosexuality is natural or not?", frames a certain kind of sexual behavior in a certain way and it has legitimized social practices that over millennia have excluded, demonized, and pathologized not only homosexuality but also a wide variety of different kinds of sexual behavior. A discussion similar to this is presented in Foucault's *The Use of Pleasure*. While Christianity began to discuss whether a sexual behavior is natural or non-natural (and successively in terms of good and bad) the Greeks discussed which kind of behavior that is preferable for the practitioner in terms of quantity, before or after taking a meal and so on (Foucault, 2000).

The implication of my discussion so far is not that I claim that one should not (or cannot, or is not allowed to) participate in discussions that include matters of ontology and epistemology. Nor do I mean to suggest that questions of ontology or/and epistemology are invalid. (That would actually be a strange claim since I am committed to such discussions in this text.) On the contrary, dealing with these matters can be both urgent and rewarding. The point is that they are not *by necessity* the most urgent ones and that the categories of “ontology” and “epistemology” *are not given by nature*. They represent one way of asking questions and of framing an issue. Therefore, when I discuss epistemology and ontology in this thesis, I fully recognize that this is only one way of dealing with the matters of reflection, and that there are other equally potent and valid ways. But, I do claim that it is urgent not to let categories such as “ontology” and “epistemology” have sole authority in discussions.

The Rationale of Part I

I devote this introductory part to some necessary groundwork for my analytical claims and main scientific contribution in the articles in part II. After my general discussion, I turn to discussing Schön in the modern reflection-field in education and teaching. I then proceed to consider Dewey, who without any doubt is the single most influential theorist for the modern debate on reflection. Since Schön himself acknowledged Dewey’s texts as fundamental for his own writing (Schön, 1992), a brief account of Dewey’s reflection concept provides a useful background to my discussion on Schön’s concept of reflection-in-action, and its metaphysical surroundings. After that I outline Schön’s theory of the reflective practitioner (1983) to be ready for my first analytical encounter with Schön’s theory of reflection-in-action. In this introductory analysis, I use Wittgenstein, and especially Newman’s use of Wittgenstein (1997)⁹ in his epistemological critique of Schön’s concept of reflection-in-action (1999), a critique in which Newman detects and illustrates a

⁹ originally published in 1953

critical (Cartesian) conceptual structure in Schön's reasoning. This is also where the analyses in the articles start.

SCHÖN AND THE MODERN REFLECTION DISCUSSIONS IN EDUCATION

When *The Reflective Practitioner* was published in 1983, it became almost instantly influential in teacher education especially in North America. Already in 1988 Grimmett and Ericksson published an anthology of the debates on Schön's book discussing, among other topics, the relevance of Schön's models for teachers (Gilliss, 1988), issues of epistemology in education in relation to Schön's conceptions of reflective practice (Fenstermacher, 1988) and the conceptual problems and its relation to practice in teaching and teacher-education (Hills & Gibson, 1988; Schulman, 1988). This anthology was an early acknowledgement of the tremendous importance of Schön's text. The reflection theme in education continued to grow and in 2000 *Reflective Practice* (Routledge) became the first international journal dedicated to reflection and reflective practice.

However, even if this research field has been dominated by Schön's theories, and of discussions and critique of them, and of Dewey's theories that Schön was inspired by, there have also been competing theories. An important example of this is Handal and Lauvås *Promoting Reflective Teaching - Supervision in Practice* (1987)¹⁰. Their theme is that experience and reflection can promote better supervision, and in contrast to Schön they present reflection as a tool to be used after or/and before practice and not while doing the actual classroom work.

Another example on an early influential theory of reflection, before Schön's theory more or less took over, is Boud's, Keogh's and Walker's anthology *Reflection: Turning Experience into Learning* (1985). The main question in their book is "What is it that turns experience into learning?" (1985, p 7). The key answer is that experience alone does not bring about learning. It is reflection that turns experience into learning (1985, pp 8-9). They trace reflection back to Aristotle (1988) but argue that in modern times it is Dewey who has had most influence, particularly

¹⁰ Originally published in Norwegian in 1983.

How We Think (Dewey, 1997¹¹). It is, however, interesting to notice that in the introduction, the authors point out that a text of great importance for the discussion on reflection and practice has come to their attention too late to be considered in their discussion, namely Schön's *The Reflective Practitioner* (1983).

The extensive use of reflection in education has of course also suggested different uses within an educational framework. McIntyre (1993) for example argues that there is confusion between reflection as an aim and reflections as a means. He points out that reflection can be a means to ensure that teacher students reflect in an adequate way during their practice, and that it can be an aim to have student teachers reflect in an adequate way in order to achieve certain aims during their practice (McIntyre, 1993). Zeichner & Tabachnick (1991) discuss how different traditions or lines of reasoning have given rise to different versions of reflection in teaching. In a somewhat different way, Grimmett and Erickson 1988 have tried to categorize how reflection has been used in teaching, teacher-education and related fields by analyzing and describing different ways in which reflection has been applied in the literature on teacher-education (Clift, Houston & Pugach, 1990). However, even if these well-known studies have tried to go beyond Schön's ways to discussing reflection, they both start with the publication of Schön's *The Reflective Practitioner* and the enormous impact this text has had since then. Reflection became after Schön's text was published a key component in the epistemology of professionals' practice. Reflection was supposed to be a part of the practice-oriented thinking that professional practitioners successively develop.

Zeichner is one of the researchers who have had an impact on this field of research (Zeichner, 1982, 1987, 1991). With Schön's texts as part of his theoretical foundation, Zeichner has over many years developed action-research and has helped to build a teacher training program with reflection as one of the leading themes at the University of Wisconsin. One might say that Zeichner has tried to implement Schön's theories in practice.

¹¹ Different versions of *How We Think* were published in 1911 and 1933.

The most well-known writer in the reflection debate in education and teaching, after Schön, is probably van Manen (1977, 1991, 1995). Van Manen has, from a phenomenological position, pointed out some difficulties in Schön's theories, and especially in Schön's discussion of reflection-in-action. In for example "On the Epistemology of Reflective Practice" (1995) van Manen discusses the temporal possibilities of reflection in teaching practice (and points out a problem that I am going to attend to later on in this thesis). Classroom work presupposes action over which there is no time to reflect, van Manen argues. Theoretical knowledge, knowledge of a special subject and teaching skills are not directly applicable in the actual classroom of chaos, contemporariness and unpredictability. Other forms of skillfulness are acquired to master these situations. "Pedagogical tact" is the term that van Manen suggests to describe this practical and experience-based competence that he recognizes as a third epistemological position; a position between theory and practice, between thinking and action (van Manen, 1991, 1995).

However, aside from the Schön-influenced contributions to discussions about practitioner knowledge during the last decade, postmodern and postcolonial criticism also extended their reach into this area of research. This is apparent in the journal *Reflective Practice*. In this journal, articles that discuss metaphors, writing as practice and subject positions from what could broadly be called post-modern standpoints, share space with practice-oriented and Schönian influenced texts. Kalmbach Phillips (2002) for example uses Foucault and Butler to analyze her own analyses of her reading of teacher essays. Beach presents critical/Marxist perspectives and discusses the organization of society within the framework of reflective practice (Beach, 2005). Bleakley (2000) and Cavallaro Johnsson (2002) explore post-personal positions that recognize practice and the practicing subject as linguistic phenomena organized by and through narratives. The consequences of Bleakley (2000) and Cavallaro Johnsson (2002) perspectives are that my "I", my practice and the narratives about myself and my practice limit the possibilities of my practice and offer at the same time the resources for change. These views on the self offer quite a contrast to the rather un-problematized subject that Schön uses as an organizing fundament for the examples around which his texts are structured.

Yet, even if the variety of approaches in this field is vast and the suggestions of what reflection is about are many, Schön and the discussions that have followed since the publication of his texts (1983, 1987) still dominate the field of reflection. One could argue that reflection as a research field (and especially as a field of research in education and teaching) has to a large degree been a consequence of Schön's theories and the impact they have had. Schön's texts and especially his concept of reflection-in-action are therefore central to understanding reflection in education and problems that are specific to this field.

DEWEY AND REFLECTION

The background for the reflection-discussions and for the special concept of reflection-in-action developed by Schön is found in Dewey's writings. Grimmett writes in an early anthology on reflection in teaching and teacher education:

His [John Dewey's] influence has been so pervasive (particularly on Schön himself) that no understanding of research in this genre [reflection] is possible without first acknowledging the common properties enunciated so long by this intellectual giant." (Grimmett & Erickson, 1988, p 6)

When discussing reflection in education more thoroughly, Dewey's concept of reflection is therefore the right place to start. One could claim that the concept of reflection, in the mainstream reflection debate, in important matters actually takes quite a different turn than Dewey's reasoning does, by not recognizing the pragmatic framework of Dewey and therefore, as discussed later in this text, actually making intellectualistic claims on Dewey's behalf. Nonetheless, the concept of reflection developed by Dewey can still be seen to be the main historical influence on this discussion.

The Primacy of Practice

Dewey criticizes classical epistemology. He focuses on function and practice. His turn is illustrated in a famous discussion he had with Russell. Burke comments on this discussion as follows:

The empirical character of inquiry /.../ is what Dewey is calling attention to when he talks about "the function of consequences as necessary tests of the validity of propositions, provided these consequences are operationally instituted and are such as to re-

solve the specific problem evoking the operations” (Dewey, 1938, p iv) – a point which Russell /.../ did not see as having any relevance to logic (Burke, 1994, p 137).¹²

The contrast between Dewey’s pragmatism and “spectator knowledge” is vital. The dominating Western order of thought and lines of reasoning recognized, on the one hand, an already organized world, and on the other hand, a subject that registers this world. Knowledge was the effect of vision. In contrast, Dewey recognized language, technology, the use of tools, thinking, doing - and the cultural, social and political institutions that at the same time offer resources for action and limit these actions - as irreducible, historical and temporal categories, that function as a basis for the complex notion of knowledge. In Dewey’s reasoning, it is by action and in action, that knowledge is gained and modified. Knowledge is a consequence of action-relations in specific social, linguistic, instrumental and institutional situations, where knowledge is already embedded and in use. Dewey altered the idiom of conceptualized knowledge and its functions: passivity was changed to activity and the search for eternal, universal truths to a continuing struggle for resources. Action, its effects and surroundings are in focus and “pure thinking” and its idiomatic preferences are abandoned. Action is the aim for knowledge, learning and thinking.

The need of thinking to accomplish something beyond thinking is more potent than thinking for its own sake. All people at the outset, and the majority of people probably all their lives, attain ordering of thought through ordering of action (Dewey, 1997, p 41).

Thinking is a tool for action and a by-product of action. On his view, thinking is structured by action and is modified through action.

¹² A point similar (but not identical) to Dewey’s is elaborated by Hacking about weapons research in *The Social Construction of What*, (2000) where he uses Foucaultian well as pragmatist perspectives in an analytical philosophical mode. One of the examples Hacking takes is the speed of light. He argues that the speed of light is only “objective” given certain physical conceptualizations, given certain instruments, given certain institutional operations, given certain knowledge on how to operate those instruments and how to interpret their results. Or differently put, “the speed of light” is only objective given knowledge about how “the speed of light” is measured.

Sociality, Tools and Action

The landscape of Dewey's reasoning also signifies a de-individualization. In relation to spectator knowledge, the epistemologically relevant subject in Dewey's writings changed from the individual on her own to the individual as part of a collective. Questions concerning communication, artifact use, institutions and politics, become relevant. The artifacts and the culture with which they are interwoven, and through which they are legitimated, produce procedures for thinking i.e. linguistic, social and cultural rules that individuals are subject to but also use as resources for action. To think "right" is to learn to handle problems in a socially accepted and for the relevant culture acknowledged way.

The historical, socio-cultural character of "thinking tools" is elaborated already in *How We Think*: "The child today soon regards constituent parts of object qualities that once required the intelligence of a Copernicus or a Newton to apprehend" (Dewey, 1997, p 18). In the West today it is "common sense" that the earth is a globe. It is not something we need to think about and we do not have to defend this belief. In the same way we can use the concept of "atom" without explaining it, which would have been impossible to do just a hundred years ago. On the other hand, it is highly unfamiliar to most of us to reflect on how original sin has affected us, something many people did in the Middle Ages. Problems at hand and the possible solutions available are partly (and mainly) a question of the culture which offers the artifacts (and thereby the language) to recognize and frame a problem as such, and also what counts as a solution to the problem. If an illness affects us we go to a physician, whereas to visit a priest is not the first thing that comes to mind. We are situated by a world, by certain beliefs, by certain "everday" knowledge and certain "reasonable" ways of action.

In this historical, political and socio-cultural production of knowledge, language plays an important part. Tiles discusses Dewey's reasoning on language and argues that Dewey recognizes language first of all not just as a tool, but as "the tool of tools" (Tiles, 1988, p 98). Through language-use, the individual learns to handle

the world and herself. Tiles points out that this external character of thinking and problem solving and its dependency on language as the tool of tools, also brings Dewey close to Wittgenstein. "Wittgenstein wrote of 'agreement in use', Dewey wrote of 'agreement in action'" (Tiles, 1988, p 98). Institutions, architecture and technology, can from his perspective, I argue, be recognized as agreements in action brought to a social and cultural "closure"; i.e. as lingual-material (discursive) manifestations of a socio-culture. "To fail to understand is to fail to come into agreement in action; to misunderstand is to set up action at cross purposes" (Tiles, 1988, p 98).¹³

Dewey's discussions about the differences between superstition and sciences may help to explain the above positions. In systems of superstition, incorrect statements may support each other within the system as individuals learn to handle the world in a consistent but incorrect way. Science has solved this problem, Dewey claims. Western societies have more (and better) knowledge about nature than they had a thousand years ago. The ability to distribute, use, construct and transform nature is proof of that. Science has *procedures* to acknowledge correct reasoning, correct observations, correct use of artifacts, correct conclusions.

For all anybody can tell in advance, the spilling of salt is as likely to import bad luck as the bite of a mosquito to import malaria. Only systematic regulation of the conditions under which observations are made under and severe discipline of the habits of entertaining suggestions can secure a decision that one type of belief is vicious and the other sound. The substitution of scientific for superstitious habits of inference has not been brought about by any improvement in the acuteness of the senses or in the natural workings of the functions of suggestion. It is the result of *the conditions* under which observation and inference take place (Dewey, 1997, p 21).

¹³ Tiles uses a quotation from Dewey's *Logic* (Dewey, 1998): "the convention or common consent, which steps (speech) apart as a means of recording and communicating meaning is that of agreement in action; of shared modes of responsive behavior and participation in their consequences/.../ Agreement in the proposition arrived at is significant only through this function in promoting in action" (Dewey quoted in Tiles, 1988, p 98).

The factors that regulate the thinking of the individual in Dewey's reasoning are found in socio-cultural resources, in language-use and in action. But, at the same time, a cultures artifacts and its technology, are involved in the individual "abilities", in the thinking of the individual.¹⁴ This is, roughly speaking, the framework that Dewey uses to develop what he labels "reflective thinking", which is therefore to be considered as a specific thinking technique, a tool by which the individual gains access to the intellectual properties of a culture and by which she can solve problems at hand.

Reflection as a Thinking Technique

A vital issue in the practical realization of reflection is the use of what Dewey labels "data". This could in a broad sense be referred to as "empirical facts" (Dewey, 1997). Reflection constitutes a reinvestigation of data; i.e. a process during which one systematically formulates hypotheses and abandons or accepts them. To reflect is to use a concrete-problem solving strategy that Dewey claims people need for action. However, not all the strategies that people use to deal with a problematic situation qualify as "reflection". Dewey writes:

When a situation arises containing a difficulty or perplexity, the person who finds himself in it may take one of a number of courses. He may dodge it, dropping the activity that brought it about, turning to something else. He may indulge in a flight of fancy, imagining himself powerful and wealthy, or in some other way in possessions of means that would enable him to deal with the difficulty. Or, finally, he faces the situation. In this case he begins to reflect (Dewey, 1960, p 101).

¹⁴ Similar perspectives are brought forward by for example Bruner (1987), Cole, (1998), Wertsch (1995) and Säljö (2000).

With pragmatic theory as a framework Dewey establishes in *How We Think* (1997), “reflection”¹⁵ as a distinct order of thinking that (i) is systematic (ii) is aimed at gaining knowledge (iii) is critical and (iv) leads to action (1997). Thus:

(i) “In its loosest sense, thinking signifies everything that, as we say, is ‘in our heads’ or ‘goes through our minds’” (Dewey, 1997, p 2). But, reflection is not only sequentiality, it is also consequence. It takes a special order where the following step in the process of reasoning “leans back on its predecessors” (Dewey, 1997, p 3).¹⁶

(ii) All thinking that fulfills the requirements of being consequential is not reflection. A child may for example tell a coherent story without claiming to gain or produce knowledge. Reflective thinking is aimed at knowledge.

(iii) Thinking can rest upon two forms of belief, Dewey argues: beliefs that are accepted even if the foundation for them has not been examined or beliefs that are accepted as a consequence of an examination of their foundation. Reflective thinking is of the second kind.

(iv) Reflective thinking influences action.

To think of whales and camels in the cloud is to entertain ourselves with fancies, terminable at our pleasure, which do not lead to any belief in particular. /.../ Beliefs in the world’s flatness commits him who holds it to thinking in certain specific ways of other objects, such as the heavenly bodies, antipodes, the possibility of navigation. It prescribes to him actions in accordance with his conception of these objects (Dewey, 1997, p 5).

Thus, networks of institutions, traditions and artifacts precede the individual and offer tools for thinking and action. The potential “problem-solving ability” is linguistically, instrumentally, institutionally and historically framed. Reflection is the action-related activity that requires the individual’s effort in order to set the available resources in motion. The development of reflective thinking is, according to Dewey, a development of the individual’s possibilities to use the available resources in a preferable way.

¹⁵ Dewey does not make clear distinctions between “reflection”, “reflective thinking”, and “inquiry”.

¹⁶ “The stream or flow becomes a train, chain, or thread” (Dewey, 1997, p 3).

SCHÖN'S THEORY OF THE REFLECTIVE PRACTITIONER

Early in his career Schön was interested in the competence of professionals, an issue that later resulted in his most influential text *The Reflective Practitioner*. As Newman points out, Schön already in his doctoral thesis *Rationality in the Practical Decision-Process* (Schön, 1954 in Newman, 1999 p 5) discusses themes in that he later developed more fully. These concepts include practitioner rationality, the connection between practice and theory, and the criticism of what Schön calls “technical rationality”, which he claims does not sufficiently answer the demands of practice. Following the same line, Schön argues in 1983 that the (at that time) new technology constitutes other demands and new ways of reasoning than sanctioned by the idiom of “technical rationality”. There is a need for a different way of recognizing practitioner knowledge and its production, in Schön’s opinion (1983).

Practice and Technical Rationality

The theoretical influences on *The Reflective Practitioner* (1983) and on its sequel *Educating the Reflective Practitioner* (1987) are mainly found in Dewey (Dewey, 1997; 1998). Schön discusses this explicitly in an essay from 1992, *The Theory of Inquiry: Dewey’s Legacy to Education*. Schön here writes that he recognizes *The Reflective Practitioner* as his own *Logic* (Dewey, 1998)¹⁷, that is, as an epistemological discussion similar to Dewey’s, and he points out that he himself did not appreciate Dewey to start with due to the “muddiness” of his work, but that he grew to re-evaluate Dewey’s texts and came to view this muddiness as generative:

When I was a graduate student at Harvard in the 1950s, my friend, Chester, urged me to read Dewey. But when I tried to do so, I found him muddy, and unintelligible. Later on /.../ I saw that Dewey’s was a generative muddiness: he was trying to say new

¹⁷ originally published in 1938

things that were bound to seem muddy to anyone trained as I had been in the logical empiricism fashionable at the time (Schön, 1992, p 123).

This comment points to a deliberate attempt to continue in the same tradition as Dewey, but, at the same time, it can still be seen as a defense for the heavy critique aimed at the conceptual weaknesses in *The Reflective Practitioner* which had been, by then, delivered by numerous researchers and philosophers in the field of education. Even so, it is also a general argument supporting his own method. In the same way as Dewey (1997, 1998), Schön tries to work his way out of the dominant traditions at the time and to invent new ways of acknowledging practitioner knowing and skillfulness.

Schön's text *The Reflective Practitioner* is structured by examples, or actually case reports, that require considerable space in the book. These examples have been referred to and used in several discussions in the debate on reflection in education and teaching. The most commonly used example - even by Schön himself who recapitulated it in *Educating the Reflective Practitioner* - is about the architect student Petra and the architect teacher Quist.

Schön's descriptions of how Petra and Quist handle problems and tools and how they discuss different solutions to problems are extensive and empirically interesting. Schön describes how Petra successively appropriates an ability to solve architectural problems and how she develops a *convergence of meaning* with Quist, that is to say, mutual understanding of how architect problems should be solved. An important contribution is that Schön recognizes that the communication between Petra and Quist involves drawings, the use of tools and that it is therefore hardly meaningful to analyze only the spoken words when discussing the interaction between them.

The theoretical issues that Schön discusses in *The Reflective Practitioner* are extensive and complex. A number of different subjects are involved and many questions are left unanswered. Questions of tacit knowledge are brought forward, such

as what is intended by “tacit knowledge” and how this subject can be meaningfully discussed or debated? But also questions about learning are accentuated, such as, from what theoretical perspective are Schön’s examples interesting and adequate and how should they be understood? Is it possible to draw theoretical conclusions from them that induce implications for other situations and institutional circumstances than the ones they are framed by and express? What view of language, culture and artifact use, of human interaction, communication and habitual forms are presupposed and excluded, given how Schön’s examples are analyzed, interpreted and explained?

It is in this vortex of potential problems that “reflection” in Schön’s text has a synthesizing function. Newman claims that reflection (reflection-in-action) is a concept that rather hides problems than explains them. Newman’s objection is valid. Schön’s use of the concept of reflection is far from stringent and uniform. But, on the other hand, the conceptual “muddiness” in Schön’s text has probably contributed to the tremendous circulation of the text and its importance for research on teaching and other practice-related fields over the past twenty years. “Reflection” has been useful in different discussions, on different topics and on different occasions.

The Professional Practitioner’s Reflection

In *The Reflective Practitioner* Schön starts with what he sees as a crisis of the professional in American society at the time and in order to develop new ways of discussing professionalism. It is, Schön argues, no longer self-evident that specialists and professionals should have the power to define their own fields of practice. The inability to acknowledge the social and ethical issues involved in professional work has given the concept of the “professional” a bad reputation.

The major reason is, Schön claims, that “professionalism” has been linked to “technical rationality” and positivism. This dominant idiom recognizes practitioners’

knowledge as something that is based on theory: i.e. the practitioner is expected to acquire a certain set of predetermined tools to be applied on practice-related problems. Professions that cannot be derived from a theoretical system, for example social work, nursing and teaching, have therefore been seen as having less of a professional status.

Schön claims, however, that architects and therapists use tacit knowledge in their work. This is knowledge that for different reasons has never been verbalized (and maybe is impossible to verbalize) and has therefore not been taught at universities. It is a situated knowledge that is only accessible when work is actually being carried out. This “knowing-in-action” is a foundation for the action-related attitude that the experienced practitioner has and that Schön calls “reflection-in-action”.

“Reflection-in-action” is a central concept in *The Reflective Practitioner*, and Schön tries to develop a new epistemology around it. Reflection-*in*-action means that practitioners reflect on professional action at the same time as they effectuate this action, and it differs therefore from reflection-*on*-action, which signifies reflection on practices before or after the actual action. Schön claims that the work of architects, therapists and teachers (1983; 1987) is characterized by unique situations that demand special professional frame-making in order to create patterns of problems before it is possible to solve them. These professions demand a complex thinking that is not technical-rational, but rather based on experience. This is, broadly speaking, what Schön terms “reflection-in-action”.

IDENTIFYING THE CONTROL-MATRIX

The major critique of Schön's *The Reflective Practitioner* (1983) and *Educating the Reflective Practitioner* (1987) has targeted the concept-use in the texts (Grimmett, 1988; Shulman, 1988; Fenstermacher, 1988; Gilliss, 1988; Hills & Gibson, 1988). This is also the line that I am going to follow, but in a different way. The problem I concentrate on is what could broadly be recognized as the problem of the body in relation to Schön's concept of reflection-in-action. The article by van Manen's referred to above *On the Epistemology of Reflective Practice* (van Manen, 1995), gives a good introduction to where I begin the discussion.

Van Manen's starting point in this article is the temporal possibilities of reflection concerning teaching practice. He claims that it is not possible to reflect during teaching, while Schön's concept of reflection-in-action seems to indicate that it is.¹⁸ Van Manen's reasoning points to a central problem in Schön's theory, which I here call "the control matrix" problem.

The Control Matrix

The control-matrix is of Cartesian ontogenesis, but can be traced back to Plato. I use the term "the control-matrix" to recognize the stipulation that the internal (the soul or the mind) controls the external (the body). This term, however, summarizes different themes that link networks of theories and critiques by family resemblance. The problems involved are many and a multitude of questions can be asked

¹⁸ Van Manen's reasoning is not self-evident. An important objection is that it is not obvious that he is discussing an epistemological issue at all, but rather how teaching practice is structured and while doing this, argues that Schön's theory is not useful in this practice (1995). However, he cannot claim that Schön is principally wrong, only that there is a mismatch between the position he himself sketches by using examples and Schön's theoretical claims. But, even if he does not develop an efficient theoretical critique on it, he has found a problematic issue in Schön's reasoning.

in relation to the themes. Relevant issues are, for example: (i) the distinction between the “automatic” body and the controlling mind (ii) the relation between wanting something and doing something (iii) the distinctions/ relations between “consciousness”, “thinking” and “control” (iv) the relevance of language for controlling, mind and body. However, in this thesis I am not primarily committed to a general discussion. I focus on issues in Schön’s theory that are relevant to the reflection discussion in education and teaching.

Newman argues that one of the major weaknesses in Schön’s epistemological claims is that they are interwoven with problems of control (1999, p 122). In *Educating the Reflective Practitioner* (1999), Schön illustrates his concept of reflection-in-action with an example of a mother with her baby. Schön writes:

Consider a mother who sits facing her baby, clapping her hands. The baby begins to clap too, mimicking its mother. The mother begins to clap at a faster pace; the baby responds by clapping faster as well. The mother claps slowly again, this time beating out a steady rhythm. The baby does likewise. The mother speeds up the beat and makes the rhythm more complicated. The baby responds by producing a lot of little, fast claps. The mother begins to play pat-a-cake with the baby, first extending her two palms to touch the baby’s two palms, then touching the baby’s right palm with her right, the baby’s left palm with her left. Confused at first, the baby soon responds by extending right hand to meet mother’s right hand, left hand to meet her left observed (Schön, 1987, p 108).

Schön comments on this in the following way:

Even so “simple” an example shows extraordinary complexity. The baby does as it has seen its mother do, reproducing her global gestures. But in order to do so, it must be able to produce control, from internal clues of feeling, what it apprehends through visual observation of external cues. Somehow, it manages to coordinate inner and outer cues to produce actions that conform, in some essential respect, to actions observed (Schön, 1987, p 108).

Schön argues that the baby has to have (or has to “produce”) control, and that this control is in fact the baby’s “reflection-in-action”. “We can see that the mother, and

Schön, take the baby's behavior as a meaningful performance of some internal intention (reflection)", Newman argues (1999, p 122). A state of "convergence of meaning" between the mother and baby is reached. Newman is critical:

The implication of Schön's thesis is that the baby, in order to mimic its mother and so in Schönian terms achieve convergence of meaning, *must already have a language* where it can take its perceptions of its mother and in a 'constructive process' privately translate them into its own performance (Newman, 1999, p 122).

Newman's point is that to be able to *control* its behavior, the baby has to have a *language*, on the basis of which it can interpret the mother's behavior and, as a result of an intelligent calculation, effectuate its own. The baby and the mother attain "convergence of meaning" by reflecting on their behavior, which is thus a *consequence* of their inner control and therefore their "internal" ("private") languages (Newman, 1999, pp 99-111). In this, however, Schön's thesis is thematically both involved with and contradicted by Wittgenstein's "private-language discussion" (Newman, 1999; Wittgenstein, 1997). Wittgenstein's analyses of language in *Philosophical Investigations* are, of course, complex. Nonetheless, Newman offers a standard interpretation with the following features:

(i) Linguistic expressions do not get their meaning by referring to things in the world directly. Meaning is a consequence of participation in language activities. In a well-known example, Wittgenstein writes:

Suppose everyone had a box with something in it: we call it a 'beetle'. No one can look into anyone else's box, and everyone says he knows what a beetle is only by looking at *his* beetle. – Here it would be quite possible for everyone to have something different in his box. One might even imagine such a thing constantly changing. – But suppose the word 'beetle' had a use in these people's language? – If so it would not be used as the name of the thing. The thing in the box has no place in the language-game at all; not even as a *something*: for the box might even be empty. – No, one can 'divide through' by the thing in the box; it cancels out, whatever it is. That is to say: if we construe the grammar of the expression of sensation on the model of 'objects and designation' the object drops out of consideration as irrelevant (Wittgenstein, 1997, § 293, 100e).

(ii) The use of language implies the use of rules. As long as the rules are followed, the communication works. Some clarifications are necessary though. First, you do not learn language by learning rules, you learn rules by learning language through practice. Second, the point is not that you therefore learn to formulate rules or learn to “think” about them, but that you learn to *use* them. Third, to know a rule is to be able to follow that rule, but also to know when to bend (and eventually disregard) the rule.

(iii) Language is something you learn from the “outside - in”. By participating in a language game you successively learn to use language within this particular language-game. You learn to understand the rules of that language game. So, what does “understand” mean in this case? Well, the question is probably not an accurate one. A more suitable question is “how do you know that someone understands something”. The answer is that if someone is able to participate in a language game (in accordance with practice), then she understands it.¹⁹

(iv) Since language is acknowledged as something that you participate in as an activity of practice, language is also primarily something “external” to the individual. Language, that is, belongs to a practice and certain activities in that practice. This means that language is not (nor can it be) private. Wittgenstein points out that you would probably not even yourself be able to know what you meant if you used a private language.²⁰ One could ask, what would a *practice* look like in a place where one established a private language?

Taking his point of departure in Wittgenstein’s discussions, Newman argues that the baby mimicking its mother in Schön’s example is not an effect of reflection-in-

¹⁹ The point is not that language and thinking are identical, but that during thinking (as in subsume under a category) language is necessary.

²⁰ An alternative interpretation is that Wittgenstein’s point is that you *cannot legitimize* whether you follow the rules or not, nor that you *cannot follow* the rules. This interpretation also has implications for how the problem of private language is to be recognized. It is also possible that this interpretation could undermine Newman’s interpretation of Schön’s reflection-in-action, concerning the private-language argument.

action, but an effect of a new communicative behavior. The baby learns new communicative skills by participating in a specific practice together with its mother. Participation implies learning a new behavior.²¹ Schön's claim that the baby needs reflection-in-action to be able to control and effectuate its behavior is wrong, according to Newman.

Using Wittgenstein to criticize Schön, Newman's argumentation consists, roughly speaking, of three primary statements: (i) Schön's theory of reflection-in-action implies an "inner control" (an internal regulation of action); (ii) this control presumes a private language; (iii) Wittgenstein's argumentation against private languages is convincing. Consequently, for Newman, Schön is wrong. What could be characterized as problematic in this argumentation is the claim that it necessarily follows that the internal control also implies internal language.

Newman's argumentation seems valid for the following reason. If the baby "has control" this implies that the baby has a structural and conscious possibility to interpret the mother's handclaps and by some sort of "thinking-operation" understands how to produce a similar behavior. A linguistic system in a broader sense (a communicative and behavior system of signs) seems to be presupposed. But, since the baby does not have access to "common" languages, she then has to have some sort of pre-language, a private-language. Schön therefore seems to contradict Wittgenstein, which, assuming Wittgenstein is correct, reveals a major weakness in his reasoning.

This problem becomes, as Newman illustrates, particularly critical in Schön's formulation of the concept *convergence of meaning* (Schön, 1983, 1986). In the well-known example from *The Reflective Practitioner* (1983) and re-used in *Educating the Reflective Practitioner*, presented earlier, Schön describes the architect-virtuoso Quist and his student Petra's interaction and, Schön claims, the growth of a convergence of meaning as a *consequence* of reflection. But, turning to Wittgen-

²¹ Schön does not make any clear distinction between "behavior" and "action". Everything tends to be deliberative action and be dependent on reflection.

stein, Newman emphasizes that “convergence of meaning does not and cannot emerge from reflection” (Newman, 1999, p 101). Quist and Petra do not become more “convergent” by reflecting on their behavior, they become more and more convergent by speaking to each other and by solving authentic problems together. The convergence in behavior and language is not an *indication* of convergence of meaning reached by their individual reflection. It *is* the convergence. Or, as Ryle dynamically writes: “overt intelligent performances are not the clues to the workings of minds; they are those workings” (Ryle, 1949, p 58).

I agree with Newman’s criticism for the most part. He identifies some questionable theoretical claims in Schön’s reasoning (Newman, 1999; Schön, 1983, 1986). However, there is a vital issue that he does not analyze, namely the question whether “control” which is “produced” from “internal clues” (Schön’s terminology [Schön, 1987, p 108]) *necessarily* implies “private language” or not. Newman argues that it does. Most likely he is right. In the scenario with the mother and the baby, the baby, Schön claims, “produces control” from “internal clues of feeling”. To be able to execute this kind of “internal” intelligent control, the baby seems to need some kind of pre-verbal conceptual-communicative system, a pre-language language.

However, even if Newman is wrong, even if it is not the case that the “control” produced from “internal clues” necessarily implies the existence of a “private language”, he has clearly pointed out the existence of what I have labeled a *control-matrix* in Schön’s reasoning, even though, Newman does not explore it or recognize it fully. This control-matrix states that something internal (a mind at work) controls the external (body) and this is where the discussions in my articles start.

OUTLINING THE ARTICLES

My contributions take a different turn from Newman's. The issue of control is for Newman a point where Schön's reasoning is contradicted by Wittgenstein's private-language discussion, and since Wittgenstein is right (according to Newman) Schön is wrong. For Newman this is a matter of language-thinking. However, even if I believe that Newman has found an important weakness in Schön's reasoning, I reframe this problem in the continuing part of my thesis and use different resources than Newman does. This does not mean that I do not recognize Wittgenstein's argumentation, but that the problem(s) that I am committed to can be taken further by the use of other theoretical resources. I use the concept of the control-matrix that I have detected/constructed by analyzing Newman's Wittgenstein-influenced analyses of Schön and by applying it to the complex body-mind relationship.

Imaginary Minds – Articles 1 & 2

The first article is entitled "Giving up the Ghost: the Control-Matrix and Reflection-in-action" (Erlandson, 2006). In this I discuss the relation between the body and thinking in Schön's theory on "reflection-in-action". I take my departure in the control-matrix elaborated above using concepts from Merleau-Ponty (1962). I argue that the control-matrix is a fundamental problem in Schön's discussion about the concept of reflection-in-action; a problem that makes understanding (an explaining of) human practice not only virtually impossible (and/or absurd) but also counter-productive.

In *The Reflective Practitioner* (1983) Schön describes how Quist, the architect teacher is able to solve problems thanks to his reflection-in-action, while Petra, through her lack of reflection-in-action, fails to solve the same problems properly (Schön, 1983, p 102-104). After describing Quist's behavior in the architect's-studio Schön subsequently sums it up: "But Quist reflects very little on his own reflection-

in-action, and it would be easy for a student or observer to miss the fundamental structure of inquiry which underlies his virtuoso performance ” (Schön, 1983, p 104).

Schön, then, acknowledges that Quist’s performance as an architect virtuoso is the *result of some kind of thinking*. I argue that this is not the case. Instead, during his practice Quist gets involved in architectural work, and he uses the artifacts of the studio as he uses his body, without “thinking”. He reflects (as an architect) only when he confronts something that he usually does not meet with, and when he therefore has to take a “roundabout way” to frame the problem properly. This is why Quist is more efficient and effortless in the architect studio than Petra: he does not think more or better than Petra, he often does not have to “think” at all. On the other hand, Petra is not fully comfortable with the artifacts of the practice and therefore has to think. She has to take a *roundabout way* (Merleau-Ponty, 1962, pp 147-148) to accomplish the same tasks.

It is quite easy to find support for the claim of the “roundabout way” in everyday life. In “normal” cases, we do ordinary things without focusing our thoughts on them: like driving a car or brushing our teeth or visiting the supermarket. At the supermarket we just grab the groceries, enter the queue, pay and leave. It is for the novice that problem arise, forcing her to think. In this article I therefore claim that (i) with his concept of reflection-in-action Schön establishes a thinking “entity” that is unnecessary for the explanation of practitioners’ practice, (ii) the concept does not have epistemological validity (iii) the concept is counter-productive for analyzing and describing action.

On the other hand, although the control-matrix is evoked and reused by Schön, this problem is not of his own making. Its genealogy could be traced back to ancient Greece, as pointed out by for instance Rorty (1980). In Plato’s cave-analogy, for example, the shadows are the mirage of the perception of the flesh that is to be replaced by the inner vision of ideas (1997). The categories that in the west we use in

everyday language to describe human action as “thinking” and “body” have since then been dichotomized.

This dichotomization is also fundamental for Descartes who brings the radical doubt to an end and exclaims, “Cogito ergo sum”. He cannot doubt that he is thinking since the doubt about this is itself thinking. But, he can doubt the existence of the body. Descartes refines Plato’s order and attributes an existence to the soul separated from the body: *res cogitans* and *res extensa*:²² the “thinking thing” and the “extended thing”. The problems with this distinction and its reification of both body and soul are well known. But, as has been pointed out by different philosophers from different traditions of reasoning – like Merleau-Ponty, Dewey and Ryle – Cartesianism is still an “official doctrine” (Ryle, 1949). And the Cartesian paradigms have continued to haunt theories in social sciences and education (Säljö, 2002; Erlandson, 2006). This also happens in Schön’s theories. The control-matrix in Schön’s reasoning (and the mind evoked by it) is therefore not something new. Schön only redistributes the problem in a new way by moving the thinking into actual doing.

The control-matrix is, however, not only a problem in Schön’s reasoning, but also in the reflection discussion in a broader perspective, which I discuss in article 2, “Saving Dewey”. Here I develop the perspectives that I introduced in the previous article. I argue that Cartesian ontology is a structuring resource in some of the mainstream discussions in the reflection debate in education. The focus of the article, however, is Dewey. I argue that Dewey has been dragged from his theoretical framework of pragmatism and been used as a representative of Cartesian ontology.

²² He also changes this order. Descartes’ fundamental question concerned the possibility of true knowledge (“true” as in self-evident). The ontological distinction between the soul and the body was a consequence of (epistemological) rationalistic doubt. This was not the case in Plato’s reasoning.

I point out that for Dewey reflection is a certain *thinking technique*, where cultural tools are at work when the subject tries to solve a problem that is an obstacle for action. But, in the reflection debate in education, there has been a tendency to attach Dewey to a different framework. The example I take to illustrate this is Boud et al.'s influential *Reflection: Turning Experience into Learning* (1985).²³

The lines of argument that I use to demonstrate that Boud et al.'s reasoning is elaborated from a fundamentally different theoretical position than Dewey's follow two main lines of reasoning. First, I discuss what Boud et al. write about "emotions" and reflection in relation to Dewey. Secondly, I discuss what could be called the problem of discrete entities and metaphors. I argue that a Cartesian ontogenesis is generated and upheld by Boud et al.'s recognition of reflection. I claim that within the reflection debate Dewey has been used to support reasoning that represents the opposite of his own reasoning.

Docile Bodies – Articles 3 & 4

So far, I have discussed the control problem involved in Schön's reasoning as an ontological and epistemological problem. The critique I have delivered has been aimed at the troublesome body-mind distinction, which ends up in a hypostasis of thinking and a reification of the body. I have used a line of reasoning from Merleau-Ponty and with my critique I have tried, figuratively speaking, to move the thinking back into the body. However, even if that Merleau-Ponty delivers a satisfying suggestion in his treatment of the mind-body problem, it is still a discussion of the ontology of the body and consequently also of thinking and behavior. Merleau-Ponty's "body" is not a subject in a political field. No social forces demand political obedience or work from this ontological body.

²³ The book is an anthology. The claims Boud et al. make here have become central in education. They are good examples of the kind of claims that have become attached to the concept of reflection in the practice-oriented discussion and illustrate what has happened to the concept of reflection when appropriated out of Dewey's pragmatic framework.

Problems of education are, however, found in networks of power, interaction and politics. They are integrated in social history, in issues concerning the use of artifacts - of language as well as buildings. As I pointed out previously, discussions of ontology and epistemology have their limitations. This is also a fundamental point made by Foucault. In *Discipline and Punish* (1991) he argues that except for studies of the body as a seat of “needs and appetites” and of the importance of “biological events” in the social sciences, the *politics* of the body also needs to be studied (Foucault, 1991, pp 25-26). From this point of view, reflection needs to be reconsidered, not as a question of whether the theories on reflection (reflection-in-action) are right or not, ontologically or epistemologically, but in terms of what they do as a technology for subjectivation. By following these lines of reasoning I try to put the thinking body back into social practice.

In article 3 “The Body Disciplined: Rewriting Teaching Competence and the Doctrine of Reflection” I argue that Schön’s concept of reflection-in-action is a theoretical construction that snatches the interacting, working, and producing bodies from their practices. Matters of politics, of institutional interaction and of the workings of social categories are reduced to matters of thinking.

At the center of my discussion in this article, and in a way also in article 4, is Foucault’s concept of power and what I have labeled the “logic of panopticon.” Foucault’s concept of power has been tremendously influential, and the discussions that it is involved in are complex. At least two characteristics should be mentioned as a broad and preliminary introduction: (i) Foucault’s power concept in *Discipline and Punish* contradicts the (enlightenment) tradition that separates power from knowledge. He argues that issues of power and knowledge are interwoven in social practices and in the institutional artifact use (linguistic, “physical” and architectural) that withholds and develops these practices. (ii) Foucault’s power concept contradicts the same traditions’ claim that schooling makes the individual free. Instead, it recognizes institutional power as subject-construction technologies that produce efficient bodies that act according to the demands and possibilities pre-

sented as resources by that power. Foucault's concept describes a social technique of making bodies useful and at the same time obedient.

Discipline is, Foucault claims, one of the dominating workings of power in the growth of modern Western society. In *Discipline and Punish* he uses Panopticon, Bentham's architectural vision of prison to illustrate discipline as a subject-construction technique. In Panopticon the captive is always visible and the guardian never. This means that from the captive's perspective there is always the possibility that she is being observed, and she therefore never actually has to be under surveillance, the possibility of it is enough. Foucault's panoptical logic could be synthesized as proposing that subjects use available resources and therefore, presented by powerful institutional tools, the outcome of the subjects' individuality - as a matter of self-production through interaction - is the consequence of participation (willingly or un-willingly) in institutional affairs.

From the perspective of Foucault, I re-interpret Schön's reflection in action. I argue that Schön's description of the situation in the architects' studio where Quist's behavior is explained by a fundamental structure of inquiry that underlies his virtuoso performances (Schön, 1983, p 104) is not acceptable from Foucault's perspective (1991), since matters of the political, social and cultural body are reduced to matters of "thinking". From the perspective developed in *Discipline and Punish* the production of knowledgeable students and efficient teachers are mechanisms in the technique of making bodies more competent and simultaneously more docile. Following the same logic I also argue that if teachers use the tools offered by academic discourses to reinterpret their own situated actions in terms of reflection, they are making themselves accessible to the power-knowledge axis of educational scientific reasoning. This might mean that the teacher becomes more efficient (and therefore more beneficial in terms of economy), but also that she becomes less powerful (in political terms).

In article four, "The Battle of Light", I recognize the discourse of light and visibility as well as its antagonists. I focus on Schön's reflection project and on Foucault's

panoptical logic as discursive events and their legitimating functions. I take my point of departure in Rorty who argues that seeing has been the model for the dominant epistemological traditions in the West (Rorty, 1979), in particular in philosophy, which is interwoven with and structured by visibility conceptualizations originating in Greece. This matrices of visibility and light also indicates a hierarchy of different forms of knowledge, Rorty claims, and thereby points to the legitimizing metaphysics for the “classical epistemology” (Taylor, 1991) in the West. It is not just a question of the ideal form of knowledge being conceptualized by matrices of visibility and light, but the knowledge of “the inner eye” being superior to other forms of knowledge.

In *The Reflective Practitioner* Schön makes a similar point. He recognizes here the misconception of practice-oriented professions, such as the ones of architects or psychotherapists, as being inferior to those of medicine and engineering since it is hard to apply technical rationality to the work of architects and psychotherapists work. But, at the same time Schön uses “reflection” to describe the competence of these practitioners, and since reflection is involved in the conceptual matrices of visibility and light and thereby could be recognized as belonging to “the same side” as the knowledge of the “inner eye, in “reflection” the eye of the mind and the eye of the body are united. This, however, also opens up for the critique presented by post-colonialists (Said, 1981; Bhadha, 1994; Kannepalli Kanth, 1997) and post-structuralists (Barthes, 1972, 1974; Derrida, 1978; 1997).

I partly reuse my critique in article 3 but develop it following some of the lines of reasoning used in the “governmentality” discussion in education, which is indebted to Foucault’s lectures on governmentality at Collège de France (Burchell, 1991; Lemke, 2000). In these lectures Foucault recognizes a link between *techniques of the self* and *techniques of domination*. This link is acknowledged by the concept of governmentality that is a set of techniques for making people *conduct* themselves in certain ways. I point out that the critique on the light and visibility theme that Foucault synthesized in panopticon as an axis of power-knowledge aimed at the active body, in the discussion about governmentality is developed further (Lemke,

2001; Peters 2004, 2005; Olsson, 2004). Instead of constructing a guard-guarded relation, the visibility idiom in this discussion recognizes a link where an individual is at the same time guard and guarded through a two-way visibility.

I do not believe that participation in these citizen-consumer producing discourses was Schön's original intention. On the contrary, Schön entered, or actually contributed to initiating, a discussion of practitioner's knowledge and thinking. But by reusing reflection and thereby the matrices of light and visibility, his theories were usable in the social production of a certain kind of subjectivity.

WHAT ABOUT REFLECTION?

The two main questions that structure the analytical efforts in the articles, as well as in the thesis as a whole, are: (i) is Schön's suggestion about the value of "reflection-in-action" valid as an epistemological suggestion for describing and analyzing the content and quality of teacher practice, (ii) how can Schön's concept of reflection-in-action and its use in education be conceived as matters of discourse? I have argued (i) that the epistemological claims in Schön's theory on reflection-in-action are highly problematic (ii) that the theory of the reflective practitioner is to be recognized as a concept that is interwoven in a particular historical and political technique for the construction of subjectivity. Both points, however, deserve to be somewhat elaborated on before turning to the articles proper.

Reflection and Control

If reflection-in-action involves considerable problems as an epistemological suggestion about professional practice, where does Schön take the wrong path? Given the analysis in this thesis, one fundamental mistake Schön makes is that he reuses a Cartesian control-matrix when explaining the successive schooling of practitioners. For instance, the architect behavior Quist has acquired by participating in the linguistic and bodily activities within the framework of architect practice is in Schön's reasoning described as the result of conscious actions effectuated by an "underlying" thinking (Schön, 1983, p 104).

On the other hand, the concept of reflection-in-action answers to a particular demand, given Schön's discussions and theoretical framework. The "grace" that Quist shows in the architect-studio in comparison with Petra, needs a plausible interpretation, and since Schön does not elaborate the body as a thematic field but uses a Cartesian body, where body is recognized as a physical *object*, interpretations that acknowledge a skillful body are not available to him. As a consequence there is a need for a concept that can explain how the body can behave as it does, i.e. how it

seems to be able to be trained to a point where, with only minimal effort, it is able to navigate between different complex activities exemplified in the architect practice or teacher practice. Reflection-in-action is therefore a “bridge-concept” that has emerged in the gap between the Cartesian reified body and the Cartesian reified mind.

One aspect of Schön’s reasoning that may have contributed to it taking a wrong direction is that while human activity has a tendency to be explained in terms of thinking (reflection), thinking (reflection) has a tendency to be reduced to “problem solving”. In *The Reflective Practitioner* Quist does not participate in practices involving social interactions such as chatting about yesterday’s weather, or football matches, because these uphold other functions than problem solving. In Schön’s text Quist is focused on solving architectural problems and his activities are described in terms of how these contribute to solving problems.

Schön’s position is of course quite understandable given the framework and purpose of Schön’s text. However, the emphasis on problem solving, becomes not only a consequence of the purpose of the text, but also an paradigm for discussions of human thinking (and action) in general. This is apparent in the example with the mother that communicates with the baby. From Schön’s perspective, it seems reasonable to frame this situation as the baby having *a problem to solve* in order to be able to communicate with her mother. From the same perspective it also seems adequate, therefore, to introduce reflection-in-action as a concept to facilitate the interpretation of how this problem-solving activity is possible. But, from other theoretical frameworks it may appear strange to recognize the communication between the mother and the baby as having something to do with problem solving at all.

The over-emphasis on problem solving is a special outcome of the over-emphasis on thinking that, as pointed out before, is a consequence of the workings of Cartesian matrices and especially what I have called “the control-matrix” in this thesis. The physical body is not a *direct* agent involved in action but an obedient and me-

diating tool for the controlling, learning and reflecting mind. Therefore, an interpretation of a situation that points to an existential and social-culturally situated body's reciprocal answer to the demands and possibilities of that situation (as in the case with the mother and the baby) is not available for Schön.

Reflection as Discursive Event

In the early 80s Boud et al., after visiting a conference in Australia, *Reflection: Turning experience in to learning*, (1985) in an attempt to use a new/reinvented reflection concept, inherited from Dewey and Aristotle. Their aim was to contribute to strengthening the field of teacher-research. The concept of reflection appeared to be a conceptual tool by which it seemed possible to discuss and acknowledging teachers thinking, their classroom work, and their professionalism. Some years earlier Schön had published *The Reflective Practitioner* (1983), trying to reframe the problem of how to acknowledge the undoubted skillfulness of professional practitioners, something that epistemological theories and frameworks of "technical rationality" had not been able to. The discussions emerging from publications like these, called for a comment by Zeichner & Tabachnick 1991, who pointed out that it is almost impossible to find a teacher-trainer who does not emphasize the importance of reflection.

Schön's book on the reflective practitioner, contributed to elaborating a theme that would inspire countless discussions in education. Reflection-in-action - synthesizing the idea of professional action being obtained by a special kind of thinking - appealed to the world of education and became a catalyzing concept in emerging research on teaching. In this thesis I discuss some arguably important problems with Schön's concept.

Does the reasoning in this thesis mean that we should not use the term "reflection"? As I have indicated already the metaphors/metaphysics at work in reasoning structured by and around "reflection" are, as in the case with "mind", part of a

Western heritage that is not easily dispensed with. Yet the term remains somewhat misleading in explaining and interpreting human action.

Even if one wants to argue that the everyday use of a concept contributes to regenerating it, and therefore should be avoided, for the time being, we (in the West) are as stuck with “reflection” as we are with “mind”. However, I suggest caution when it comes to using the concept of reflection when developing scientific reasoning and/or scientific models in education. Reflection seems to be a “blanket-concept” that tends to, as Newman puts it, cover problems rather than solve them (Newman, 1999). In addition, as this thesis argues, reflection-in-action is counter-productive when it comes to describing, analyzing and evaluating human action and the social practices that this action is embedded in and framed by.

Although, “reflection-in-action” is a highly problematic concept when it comes to analyzing, describing and developing practitioners’ practices, the impact of this concept has been tremendous. From the perspectives presented in this thesis the impact was perhaps not only due to the fact that the growing field of research on teaching needed theoretical tools as scientific resources in order to describe teaching. The concept also became used as a political tool; a tool for empowerment, a tool for creating scientific concepts for teachers themselves in terms that the academic world would accept. Schön’s book *The Reflective Practitioner* (1983) fitted the political-strategic and institutional needs of teachers.

Following Foucault (1991) one could argue that reflection as a discursive event is a question concerning how reflection is used as a resource for the creation of legitimizing links between a profession and the academic description of the profession. Reflection is a way for teachers to gain access to an axis of power-knowing that structure the tools for increased knowing and at the same time increased docility. The university is from this perspective and from the perspectives of everyday activities of working teachers a somewhat hostile regime.

On the other hand, the theme of reflection, as elaborated on in Schön's *The Reflective Practitioner* and disseminated over the world of education for twenty years, should not be recognized as an internal academic activity, or an activity that describes the relation between academic practices and practices outside the academic world. Neither should it be understood as a local, and in temporal terms, distinctively limited discussion, for the cultural material that is in use in the reflection discussions in education, originated in ancient Greece (elaborated by Plato in *The Republic* [1997]) and has over the centuries been reused and transformed into different conceptual, linguistic and discursive formations, both in explanations of activities or interpretation of them, as well as in legitimating those structuring efforts (Laclau & Mouffe, 1985; Foucault, 1991; Kannepalli Kanth, 1997). In other words, *imagined minds have been used on docile bodies in the production of subjectivity.*

To illustrate the point we could use Conrad's novel *Heart of Darkness* (1899)²⁴, in which the European carriers of light are an invasion-force of the West who exploit Africa, and who in the name of civilization, efficiency and commerce commit hideous crimes. The matrices of light and visibility are involved in Conrad's construction, and, as Rorty points out, these matrices acknowledge a divergence between different forms of knowledge. But they also represent a major characteristic of the epistemological tradition of the West, a tradition that also clusters activities, work and social practices (as well as the linguistic and conceptual organization of these matters) according to the same discursive "logics of equivalence" (Laclau & Mouffe, 1985). The same hierarchy functions in putting light over darkness, theoretical reason over practical reason, reason over emotion, man over woman and human over animal. This is why the practical matters that individuals are involved in could profit from being described in terms of light and visibility. "Epistemology" is at work.

This idea of "epistemology at work" offer, I think, quite another perspective of the wide circulation of reflection in education and at the same time illustrates a Foucaultian power concept. The resources offered by reflection provide an increase in

²⁴ originally published in 1899

knowledge and a new way to describe and legitimate teacher work. But at the same time they also offer an increased obedience, as this “new knowledge” and its legitimating resources demand academic forms of understanding and recognition. Another side of the workings of these, with a Foucaultian vocabulary, “technologies” of visibility and light are exemplified in the landscapes of glass that are multiplying in the West, where the guardian-guarded prism of power accentuates the self-regularity of the citizen-consumer. Reflection is another mechanism in this technology.

In a way, Schön’s “thinking baby” is an appropriate idiomatic picture of the reflection theme brought to an intellectual as well as social end. The control inflated in the reciprocal process between the baby and the mother is a small interlude in Schön’s description, an exemplification of the workings of reflection-in-action. But, at the same time, it is also the marking of, and the opening into, a conceptual (and metaphysical) landscape. Rewritten, the thinking baby is the intellectual baby, noticing its mother clapping hands, judging them, taking different possible responses into consideration and after a while, deciding to answer the same way by following the mother’s handclap rhythm. This points in a direction where it is possible to describe human activities, history, struggles, preferences and desires in intellectual terms in a way that at the same time fixates human beings as docile, effective, flexible, accountable, self-regulative and autonomous. Reflection(in-action) *came to work* in the production of subjects that are capable of economic rational choices in the penetrating light of reason. But in the same way as there are individuals who never learn to/are disciplined to do this well, the Western enlighten man is not the only possible ideal. There are of course other lines of argumentation, or other voices (Bachtin, 1986, 1993), that offer alternatives to these possibilities.

There is, of course, no end to this discussion. Even if the reflection theme in education works mainly socially and politically, some of the issues recognized in the debates around reflection *highlight* authentic problems. These problems concern practitioner practices as well as the human capability to develop skills in relation to the environment as well as to critically discuss this environment. This is amply il-

illustrated in the journal *Reflective Practice* that has been able to publish contributions that express not only Schön's views but also conflicting ones. Discussions about the issues involved in the reflection debate are bound to continue, one way or another.

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