

The work of critique in architectural education

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ABSTRACT

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The research reported here is an investigation of instruction and assessment in architectural education. The focus is on the practice of *critique*, an educational activity in which instructors and professional architects give students feedback on their finished projects. Taking an ethnomethodologically informed approach, the interests of the thesis revolve around questions of *how* critique is done as an occasioned instructional practice. The empirical material consists of video recordings of critique sessions at a Swedish school of architecture. The core of the thesis consists of four empirical studies. Study 1 deals with issues of professional vision and the ways in which the graphical surface of the presentation is *seen*. Study 2 addresses the significance of *intentions* in the setting. The study examines how the relation between students' stated intentions and the presented designs is treated by participants. Study 3 deals with the use of precedents and references, analyzing how critics respond to students' ways of handling *intertextual* aspects of architectural design. Study 4 focuses on the material and spatial set-up of critique—the differing affordances of digital slideshows and posters for presentation and discussion. Critique is found to be a site where architectural proposals are treated for the purposes of instruction as provisional and improvable, and where their significances are detailed in exhibitions of architectural reasoning and judgment. Such exhibiting involves identifying and elaborating on problems and qualities, and articulating values that are visible in the envisaged buildings and their graphical representations. These interpretations may be juxtaposed with the expressed intentions of students, as these appear in verbal presentations or in textual accounts. Their interrelations are inspected and discrepancies are noted and discussed. On the basis of the analyses in the thesis, the function of critique is argued to centre on the juxtaposition of student-produced objects with professional competences for seeing, articulating, assessing, and contextualizing these objects. In organizing the educational program around cycles of production and critique, architecture is provided with a powerful means through which design competences, and the assessment practices that lie at their core, can be made massively present within, and constitutive of, the developmental processes through which students acquire the intellectual, aesthetic, and discursive repertoires necessary for competent architectural work.

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Göteborg, August 2010

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Part One

THE WORK OF CRITIQUE
IN ARCHITECTURAL
EDUCATION

CHAPTER I

INTRODUCTION

The research reported here is an investigation of instruction and assessment in architectural education. The focus is on the practice of *critique*, an educational activity in which instructors and professional architects give students feedback on their finished projects. This practice is approached as a perspicuous setting for analyzing the display and enactment of architectural competences, and for developing an understanding of *how* these competences are taught and learned. Taking an ethnomethodological (Garfinkel, 1967) approach, the interests of the thesis revolve around questions of how critique is done as an occasioned instructional practice. The core of the thesis, Part 2, consists of four empirical studies. Part 1 should be seen as a way of framing the reading of the studies. It positions the studies in their theoretical and methodological context and discusses questions that are raised and implications that can be drawn from the empirical work. As the concern throughout is with participants' ways of articulating and orienting towards architectural knowledge and competence, some preliminary observations on the characteristics of architecture as practice and discipline is in order.

First, architecture occupies a liminal position between art and construction. This means among other things that the qualities of an architectural proposal, as well as the competences and skills of the designer, are judged in terms of aesthetic, artistic, and conceptual as well as functional and technical considerations. The architect must handle the challenges of both art and engineering. Second, the range of phenomena relevant to architectural design is strikingly wide and open-ended. The success of a built environ-

ment is dependent upon economical, political, geographical, and cultural factors, in addition to the purely aesthetic and functional ones. In sum, there can be said to be an interesting *complexity* in architectural practice—it represents an amalgam of competences otherwise often treated as distinct. Consequently, the objects produced by students, and assessed during critique, must be designed to take into account a multitude of disparate but interrelated, and sometimes conflicting values.

In various accounts, from antiquity up until the present, this complexity has been thought of as placing particular demands on the practitioner. In ancient Egypt, the great architect Imhotep “was revered for his great wisdom as a scribe, astronomer, magician and healer” (Kostof, 2000b, p. 3). In the *Ten Books on Architecture* written around 25 B.C., the Roman scholar Vitruvius outlined the set of competences ideally possessed by the architect:

To be educated, he must be an experienced draftsman, well versed in geometry, familiar with history, a diligent student of philosophy, know music, have some acquaintance with medicine, understand the rulings of legal experts, and have a clear grasp of astronomy and the ways of Heaven. (1999, p. 22)

The aspiring architect should be naturally gifted, but also amenable to instruction—one whose skills in the arts and sciences were to be cultivated from childhood (or more specifically boyhood) and onwards, until finally reaching “the loftiest sanctuary of Architecture” (ibid.). Institutionalized programs of education were absent at the time of the writing of this treatise, and the training of architects was managed through apprenticeship preceded by liberal arts education—the medicine, music, law, and astronomy of Vitruvius’ account (MacDonald, 2000).

Today, educational programs geared specifically at architecture serve as the principal means through which the competences required for skilled architectural work are reproduced. These programs are not apprenticeships in the traditional sense. Rather, architectural education can be seen as a form of *practicum*—an institutionalized setting specifically organized for teaching and learning, with its own modes of practice and assessment of skill and competence. Schön describes the character of a practicum as follows:

The practicum is a virtual world, relatively free of the pressures, distractions, and risks of the real one, to which, nevertheless, it refers. It stands in an intermediate space between the practice world, the “lay” world of ordinary life, and the esoteric world of the academy. It is also a collective world in its own right, with its own mix of materials, tools, languages, and appreciations. It embodies particular ways of seeing, thinking, and doing that tend, over time, as far as the student is concerned, to assert themselves with increasing authority. (1987, p. 37)

Within the architectural practicum, critique has a central position as part of the ways in which the institution is organized so as to refer to disciplinary realities; it provides means through which architectural materials, tools, languages, and appreciations can relevantly come to assert themselves. In short, critique is a setting in which students meet and are made accountable for articulations and understandings of competent practice.

Such articulations and understandings are seen in this thesis as forms of practical reasoning and judgment. For the latter notion, the writings of John Dewey may provide some grounding. In *Art as Experience*, Dewey (2005) discusses at length the nature of professional criticism. While not directly dealing with critique as delivered in educational settings, there is a central element of *instruction* in the ways in which Dewey conceives the role of the critic. In a perspicuous formulation, Dewey states that, “the function of criticism is the reëducation of perception of works of art; it is an auxiliary in the process, a difficult process, of learning to see and hear” (p. 338). Dewey’s concern is to establish an understanding of criticism as neither “judicial”—that is, applying established norms, standards, or rules to works of art—nor “impressionistic”—a standpoint that would exclude the possibility of objective judgment. In the impressionistic view, the stuff of criticism would be constituted by whatever subjective reactions the critic may have upon encountering a given piece. Judicial criticism, on the other hand, is explicated through a parallel with the practice of measurement, in which a definitive standard is juxtaposed with the object under scrutiny, yielding a specification of the object in terms of *quantity*. In this connection Dewey notes, “the standard, being an external and public thing, is applied physically. The yardstick is physically laid down upon the things measured to determine their length” (p. 320). The critic, in contrast, is *judging*, not measuring physical fact:

The child who can use a yardstick can measure as well as the most experienced and mature person, if he can handle the stick, since measuring is not judgment but is a physical operation performed for the sake of determining value in exchange or in behalf of some further physical operation [...] The same cannot be said of judgment of the value of an idea or the value of a work of art. (p. 320)

Denying the relevance of judicial understandings does not mean that no logic or coherence can be found in criticism, that it would be purely impressionistic, reducing all experiences of art to “a shifting kaleidoscope of meaningless incidents” (p. 318). It only implies that criticism is *judgment*, that it “involves a venture, a hypothetical element; that it is directed to qualities which are nevertheless qualities of an *object*” (p. 321). Judgment is for Dewey a general characteristic of human reasoning. It occurs when a situation is doubtful, but not completely obscure. It may be a case tried in court, or simply a situation in which “a moving blur catches our eye in the distance,” and we ask ourselves: “what is it?”

If [the situation] suggests, however vaguely, different meanings, rival possible interpretations, there is some *point at issue*, some *matter at stake*. [...] Which of the alternative suggested meanings has the rightful claim? What does the perception really mean? How is it to be interpreted, estimated, appraised, placed? Every judgment proceeds from some such situation. (1910/1991, p. 102)

Critique in architectural education would seem to be one candidate for such a situation of judgment, a focal event in the educational program where architectural reasoning is exhibited and highlighted for the purposes of instruction and assessment.

Critique has been described as a cornerstone of design education (Parnell, Sara, Doidge, & Parsons, 2007). It constitutes the main form of assessment in the education of architects and it is also increasingly recognized as an important instructional practice. The critique format is deployed worldwide—in architecture as well as other design disciplines—and has retained its basic characteristics for many years. The practice may be considered one of the *signature pedagogies* (Shulman, 2005) of design education; where law employs the case-based dialogue, and medicine bedside teaching (ibid.), the concerns of architectural education converge in the production and critical scrutiny of design proposals. In addition, critique as a form of in-

struction has been used as a model for educational activities outside design education. Hybrid activities have been proposed within such diverse fields as human-computer interaction (Kehoe, 2001), mathematics (Jurow, 2005; Jurow, Hall, & Ma, 2008; Shaffer, 2002, 2007), and teacher education (Brocato, 2009), making use of iterations of production, criticism, and revision inspired by design studio work. Thus, it seems safe to say that an adequate account of critique is of central importance for understanding architectural and design education, and for informing the adoption and transformation of the practice in other settings. However, while critique and its significance as a vehicle for student learning has been extensively debated within the field of architectural education (e.g. Anthony, 1987; Frederickson, 1990; Webster, 2005), very little research has documented and analyzed the work of critique—that is, the detailed real-world practical actions that constitute its achievement in situ. This is so in part as a result of a predilection in the literature to base analyses on participants' post-hoc reports—often formulations of experienced problems or benefits of the practice—and to present findings in the form of interview or questionnaire studies. The conclusions drawn are, as a rule, normative. Alternatively, or in addition, studies make theoretically motivated appraisals in terms of models of effective learning and instruction.

In sum, these discussions proceed largely within a framework of pedagogical and didactic concerns about how to reform and improve architectural education. While in no way questioning the relevance of such discussions, it can be noted that critique itself, as a practical occasioned phenomenon, is curiously absent from the literature. The perspective taken in this thesis maintains that the constitutive practices of critique make up an unexamined phenomenal background to extant debates. It is unexamined in the sense of being *glossed* in existing accounts. At the same time, the practical achievement of critique is relied upon as a resource when, for instance, directives for educational reform are formulated. It is by referring to and glossing features of practice that such formulations are recognizable by members as sensible, valid, and reasonable. This study, however, aims to turn this unexplicated resource into a *topic* of research. Thereby, a more nuanced understanding of the practical conditions for critique may be gained.

The empirical material consists of a set of video recordings of final critique sessions at a Swedish school of architecture. In these sessions, students

present their finished projects—the result of work conducted individually or in groups over periods of several weeks or sometimes months—and receive feedback from an audience of peers, instructors, and practicing architects invited to the school. The main interest of the study lies in documenting, describing, and analyzing the instructional work of critique. In particular, the analyses unpack the ways in which architecturally relevant competences, phenomena, and objects of knowledge are made visible in and as the practical actions of students and instructors.

Some preliminary observations in relation to this interest can be made at the outset. The work of critique is fundamentally embodied work, carried out through the concurrent use of a range of material and discursive resources. Topics that arise in the critique range from aesthetic judgments, through conceptual and metaphorical values of architectural forms and the soundness of constructions, to the usability of proposed buildings for envisaged inhabitants. Participants are unceasingly oriented to the physical materials—posters, projections, and models—making up the architectural proposals under scrutiny; the work of critique is thus deeply dependent on the forms of inscription and representation employed, and the technologies mediating the practice.

Each of the four studies in the thesis focuses on one particular aspect of critique practice. Study 1 deals with issues of professional vision (Goodwin, 1994) and the ways in which the graphical surface of the presentation is *seen*. Study 2 addresses the significance of *concepts* and *intentions* in the setting. The study examines how the relation between students' stated intentions and the presented designs is treated by participants. Study 3 deals with the use of precedents and references, analyzing how critics respond to students' ways of handling *intertextual* aspects of architectural design. Study 4 focuses on the material and spatial set-up of critique—the mediation of presentations by means of digital slideshows and posters and the ways in which architecturally relevant phenomena are communicated, discussed and made visible in the sessions. While different in emphasis and scope, all studies share a concern with the instructional work of critique, and participants' practical orientations to the visibility of architectural knowledge.

The remainder of Part 1 of the thesis, before the studies, consists of six chapters. Ethnomethodological perspectives on instructional work are articulated in the following chapter. Chapter 3 provides a brief historical

background, tracing the development of architectural practice and education from antiquity to the present, after which, in Chapter 4, some previous work on architectural knowledge, design education, and critique in the present context is discussed. The fifth chapter outlines the analytical approach of the study, along with a description of methods and data materials. Chapter 6 contains summaries of the studies. Finally, Chapter 7 discusses some common themes emerging in the analyses.

CHAPTER 2

ETHNOMETHODOLOGY AND EDUCATION

The analytical approach of this thesis is extensively informed by thinking within ethnomethodology. Ethnomethodology, nominally the study of “people’s methods,” was founded in the work of Harold Garfinkel. Garfinkel introduces the ethnomethodological project as a mode of inquiry that aims “to treat practical activities, practical circumstances, and practical sociological reasoning as topics of empirical study” (1967, p. 1). Such studies are concerned with analyzing everyday practices and “seek to learn about them as phenomena in their own right” (ibid.).

With a starting point in these formulations, a few key ideas in ethnomethodology can be expanded upon. First, the reference to *practical* activities and circumstances as a topic of study is not to be read as singling out a special kind of activity, distinguished by being particularly practical or “hands on,” but rather as pointing to the practical character of *any* activity as performed in the world. Fields such as astrophysics (Garfinkel, Lynch, & Livingston, 1981) or mathematics (Livingston, 1999) are as analyzable and describable in terms of the practical character of their constitutive activities and circumstances as is the work that goes into assembling a piece of furniture from written instructions (Garfinkel, 2002). Thus, “inquiries of every imaginable kind, from divination to theoretical physics, claim our interest as socially organized artful practices” (Garfinkel, 1967, p. 32). Rather than functioning as a demarcation, then, the term practical serves to signal a particular perspective on action; it highlights the open-ended non-formulaic nature of actual situations of conduct, which irremediably requires of actors that they assemble the materials at hand in a skilled artful manner in

order both to act competently themselves, and make sense of others' actions. Competent action, whether in everyday situations or in disciplinary settings, should be understood in terms of, as Garfinkel writes, "courses of common sense rationalities of judgment which involve the person's uses of common sense knowledge of social structures over the temporal 'succession' of here and now situations" (p. 68). It is the incremental, serial building of action, and the mundane reasoning and judgment that go into it, that is signaled by ethnomethodology's insistence on the practical.

From the introductory quotation, we learn that ethnomethodology takes an interest in *reasoning*, more specifically *sociological reasoning*. A number of issues may need to be clarified in relation to this. Announcing an interest in "sociological reasoning" should not be construed as pinpointing the work of sociologists as a favored focus for ethnomethodological studies (although sociological work is one possible topic, for instance Anderson & Sharrock, 1982; Maynard & Schaeffer, 2000). The point is, rather, that the everyday actor can be conceived as a "lay sociologist" who is continually engaged in interpreting his or her context of action and the identities or institutions constituted in and as the performance of action. It is by force of a robust practical knowledge of various forms of social structures that the actor maneuvers the everyday world. To understand further what can be meant by reasoning in this context—especially as analytical interests are shifted from everyday sociology to the more esoteric sense-making practices characterizing specialized work settings—we may turn to the work of Eric Livingston. Livingston has delved into the minute details of activities such as playing checkers (2006a), proving mathematical theorems (1999), reading poetry (2006b), and laying jigsaw puzzles (2008b). A central idea is that all these different domains are constituted by their distinct forms of reasoning, fitted and specific to the particular concerns and operations of the domain in which they figure. For instance, reasoning in the solving of jigsaw puzzles involves things such as the following:

Puzzle solvers will [...] find themselves making fine discriminations of shading, resorting to physically trying the different pieces and, in inarticulate ways, developing hopelessly embodied, motorkinetic perceptions of the related shapes and detail of the pieces; they'll develop local strategies for engaging in these procedures in systematic ways; they may even try to organize the pieces in terms of the shapes and sizes of

the pieces' "holes" and "knobs." Between these extremes of border and undifferentiated background, there is the work of discovering relationships between, and connecting, different clumps of fitted pieces and of extending the developing structures already in place. (2008a, p. 844)

Forms of reasoning such as these are difficult to reduce to general characterizations of cognitive operations. Thus, to turn to another of Livingston's domains of study, "reasoning in checkers isn't a form of universal reasoning that's applied to the play of checkers; it's a type of reasoning indigenous to, living within, and sustained by the practices of crossboard play" (2008b, p. 8). Skill and reasoning are seen as related phenomena. Similarly, perception and embodied action feature as integral parts of any performance of reasoning in the world. For Livingston, examining checkers, origami, or the work involved in performing psychological experiments involves looking at "the interrelationships between skill, reasoning, perception and embodied action" (p. 9). In a similar fashion, architectural critique sessions can be seen as activities in which particular forms of reasoning are exhibited; forms of reasoning tied to the interpretation and assessment of architectural proposals.

Ethnomethodology seeks to learn about practical activities as "phenomena in their own right" (Garfinkel, 1967, p. 1). This means that social interactional phenomena under study are considered worthy of analytical attention in themselves. Their function is not to feature as mere illustrations of points derived from social scientific theory, or to be subsumed under some pre-conceived scheme or argument. In the ethnomethodological project, detailed empirical work takes precedence, and the hoped-for outcome consists of explications of the "seen but unnoticed" ordinary practices through which members in social settings *achieve* those same settings. Through such explications, theoretical issues may be respecified and recast as participants' concerns.

A central premise for understanding the ways in which members achieve the order of social settings is that activities are produced to be *accountable*—that is, observable, recognizable, and describable as the activities they (accountably) are. As Anderson and Sharrock phrase this central idea:

Activities can be seen as organized in order to produce the products they do. Such a strategy makes it permissible to speak of social actors as producing the routine, ordinary orderliness that their lives have by

recognizably doing for example, t.v. watching, drinking with friends, shopping with the family, writing academic papers. (1984, p. 103)

In Garfinkel's words, accountability refers to the character of social actions of being produced to be "observable-and-reportable, i.e. available to members as situated practices of looking-and-telling" (1967, p. 1). Similarly, actions and accounts are characterized by *reflexivity*, which refers to their self-organized, self-explicative nature. There is thus a strong sense that the orderliness of social action is visible, available, and *there*, in and as its local production; this means among other things that if we ask what it is people are doing, what some social setting or activity is, and how it is produced, that production will be available to us as analysts. There is no immediate need to look elsewhere for explanatory frameworks in order to understand a sequence of activity. We may use a camera to record some set of unfolding activities and trust that they will be richly and visibly textured with the local relevancies and projects of participants. In the first instance, of course, that texture is there for members, and provides inter alia a basic grounding of the ways in which social practices are learnable.

I will return to the phenomenon of visibility in connection to learning and instruction when discussing the application of ethnomethodology to educational practice. First, however, it is useful to note one final characteristic of this tradition; ethnomethodology is characterized by a commitment to a thoroughly *non-ironic* perspective on studied phenomena. This policy is usually conceptualized under the rubric of *ethnomethodological indifference*:

[A] leading policy is to refuse serious consideration to the prevailing proposal that efficiency, efficacy, effectiveness, intelligibility, consistency, planfulness, typicality, uniformity, reproducibility of activities—i.e., that rational properties of practical activities—be assessed, recognized, categorized, described by using a rule or a standard obtained outside actual settings within which such properties are recognized, used, produced, and talked about by settings' members. All procedures whereby logical and methodological properties of the practices and results of inquiries are assessed in their general characteristics by rule are of interest as phenomena for ethnomethodological study but not otherwise. (Garfinkel, 1967, p. 33)

Thus, for instance, when examining the practical character of scientific work, this is done without the intention of constructing a critique of scientists for being less rational or objective than is normally claimed. Instead,

an ethnomethodological study of scientific practice *respecifies* (Garfinkel, 1991) for instance objectivity or rationality as the practical achievement of members; we may learn what objectivity consists of, how inquiries are made so as to exhibit the properties that warrant the ascription of objectivity to them. Such a mode of analysis provides resources for a “non-ironic sociology,” which, “explicates, rather than downgrades, members’ knowledge without analytic stipulation and imposition of [...] an external standard, and instead has regard to the practical (e.g. descriptive) adequacy of some item of knowledge to the situation of which it is an inextricable part” (Watson, 1994, p. 173).

While the analyst should abstain from assessing the practices under scrutiny, it is also clear that members’ own practices for assessing the rationality or objectivity of findings are available as a practical and researchable phenomenon. In a way, this is a useful formulation of the aim of this thesis; to examine a set of procedures for the assessment of logical and methodological properties of the practices and results of students’ inquiries, exhibited in and as their production and presentation of architectural proposals. It is orders of practical reasoning such as these that the studies seek to learn about, as phenomena in their own right.

CONVERSATION AND WORK

As the recorded interactions to a substantive extent consist of talk, the literature within the tradition of conversation analysis (CA) (Sacks, 1992; Schegloff, 2007) has provided an important backdrop to, and resource for, the analytical work in this thesis. Although the studies reported here are not conversation analytic in the sense of attempting to systematically study the structure of conversational action as such, CA represents a body of empirical findings concerning the ways in which utterances accomplish actions, critical for understanding what it is participants are doing in the sessions, and also provides a set of analytical resources with which to approach talk-in-interaction. Much of the ethnomethodological literature cited is also based in part on, or is informed by, conversation analytic work—it is difficult to draw sharp distinctions between the two fields (although see Bjelic & Lynch, 1992; Lynch, 1993, for a discussion of foundational differences). In the studies, conversation analysis features in two main ways; first, as a

resource for understanding singular actions or sequences in the interactions under scrutiny; and second, as providing a set of general resources, or ways of thinking, about the character and analyzability of talk-in-interaction and social action more generally.

One central analytical resource is the notion of *sequentiality*. Recall that Garfinkel characterized practical action as “courses of common sense rationalities of judgment which involve the person’s uses of common sense knowledge of social structures over the temporal ‘succession’ of here and now situations” (1967, p. 68). The conversation analytic work of Sacks, Schegloff, Jefferson and others from the 1960s and onwards can be said to consist of the detailed exploration of how actors employ common sense knowledge of the structures of conversation, in and as their production and inspection of ordered turns-at-talk. It is a forceful demonstration of the serial and sequential, turn-by-turn, achievement of social action. A premise in this work is that in the production of a sequence of conversation, “each participant’s talk is inspectable, and is inspected, by co-participants to see how it stands to the one that preceded, what sort of response it has accorded the preceding turn” (Schegloff, 2007, p. 1). The sense of any singular turn will depend on its relation to what came before, and on the sorts of subsequent actions it projects or makes relevant. This is a general feature of action as seen from an ethnomethodological perspective, and provides the analyses with a resource with which to understand *context* as a dynamic ongoing production. To quote Goodwin and Heritage:

Every action is simultaneously *context shaped* (in that the framework of action from which it emerges provides primary organization for its production and interpretation) and *context renewing* (in that it now helps constitute the frame of relevance that will shape subsequent action). (1990, p. 289)

There is a prospective-retrospective dimension to the establishment of shared understandings in conversation, which means that the meaning of an utterance is not settled, for participants, at the point of its production. In Garfinkel’s convoluted but apt formulation:

For the sensible character of an expression, upon its occurrence each of the conversationalists as auditor of his own as well as the other’s productions had to assume as of any present accomplished

point in the exchange that by waiting for what he or the other person might have said at a later time the present significance of what had already been said would have been clarified. Thus many expressions had the property of being progressively realized and realizable through the further course of the conversation. (1967, p. 41)

As each subsequent action constitutes a displayed understanding of what went before (cf. Moerman & Sacks, 1971/1988), speakers can monitor, and if necessary, initiate *repair* (Schegloff, Jefferson, & Sacks, 1977) in a next turn of their own. Such repair after next turn—typically in the conversational slot of third position following upon the repairable—provides what Schegloff terms a “structurally provided defense of intersubjectivity” (1992, p. 1295). That is, “the turn-taking system has, as a by-product of its design, a proof procedure for the analysis of turns” (Sacks, Schegloff, & Jefferson, 1974, p. 728). Furthermore, and crucially, in this procedure, “lies a central methodological resource for the investigation of conversation, [...] a resource provided by the thoroughly interactional character of conversation” (ibid.). While the proof procedure primarily constitutes a resource for participants’ on-line analysis of displayed understandings, these displays “are available as well to professional analysts, who are thereby afforded a proof criterion (and a search procedure) for the analysis of what a turn’s talk is occupied with” (p. 729). The next turn proof procedure thus provides a guide for deciding which of a set of alternative plausible interpretations of a given utterance or sequence of utterances should be used in the analyses.

Sequential analysis helps sort out what a given turn does, that is, if it should be seen as for instance a complaint, a question, an answer, or a correction of a prior turn. In understanding what participants are doing in the work of critique, an additional concern will be the topical aspects of talk, that is, what the talk is about, and how it may be understood as part of, for instance, an instructional project. As Garfinkel points out in a general characterization of a stretch of conversational interaction, “the sense of the expressions depended upon where the expression occurred in serial order, the expressive character of the terms that comprised it, and the importance to the conversationalists of the events depicted” (1967, p. 41). Thus, Garfinkel indicates aspects of interaction which to certain extents go beyond sequential positioning of turns, and touch upon such things as the meaningful use of categories, and the ways in which talk is implicated

in the practical projects of participants—the work they are engaged in. In an analysis of the work of teaching, and listening to, a lecture in chemistry, Garfinkel discusses the features of “exhibiting understanding” in relation to questions posed by the teacher. He remarks:

Such features are not to be seen only in its objective products, namely, its talk structures. Rather, they are to be explicated by reference to such attendant features as the sequential character of this lecture vis-à-vis the next lecture producing as its end result the ability to treat an exam, where the exam provides a guide to how to be listening so as to be finding in the talk those places where later accountability criteria of understanding will be administered. (2002, p. 239)

Addressing such aspects of interaction, the tradition which has become known as *ethnomethodological studies of work* is concerned with elucidating the “phenomenal field properties” (ibid.) of situated practices, of which the structure of talk is but one component. In such a mode of analysis:

[T]here is a unique preoccupation with local production and with the worldly observability of reasoning. This means that reasoning is displayed in the midst of orders of intersubjectively accountable details. [...] A key aim of such analyses is to describe [...] competencies as demonstrable courses of inquiry with distinctive materials at hand, whether those materials are conversational utterances, embodied places in a queue, or flasks and beakers being handled by an experimenter. Painstaking attention to the detailed production of such exhibits then enables the analysis to specify their constitutional properties as orderly structures. (Lynch, Livingston, & Garfinkel, 1983, p. 207)

The original interests of Harvey Sacks, whose work provided the foundation for CA, were also directed at far wider phenomena than conversation conceived structurally and sequentially. His lectures were concerned, for instance, with the analysis of membership categorization (cf. Hester & Eglin, 1997), a topic virtually neglected within mainstream CA. These wider interests leads Watson (1994) to suggest that, rather than *Lectures on Conversation*, entitling the publication of Sacks’ lectures along the lines of *Harvey Sacks: Mind, Language and Society*, would have done more justice to the range of issues with which he was concerned. In sum, although CA offers resources for understanding naturally occurring talk-in-interaction, the ethnomethodological interests of this thesis as applied to instructional

work and the visibility of architectural reasoning, are not properly characterized as conversation or interaction analytic. Rather, the analyses aim to contribute to a study of work, “describing competencies as demonstrable courses of inquiry with distinctive materials at hand” (Lynch, et al., 1983, p. 207).

ETHNOMETHODOLOGICAL STUDIES OF INSTRUCTION

Ethnomethodological and conversation analytic perspectives have been applied in various ways to educational settings. Hester and Francis (2000) identify a number of broad themes in ethnomethodological studies of education. An early and enduring topic has been *educational decision-making*, that is, the practices of various educational professionals for “allocating, assessing, testing, grading, sorting, referring” (p. 8). Analyses have also been done of *standardized educational assessment and standardized testing*, demonstrating the interactionally contingent and practically achieved nature of test results (e.g. Maynard & Marlaire, 1992). The topic that is the most extensively studied is *classroom order and management*. Focusing on “classroom control and the identification and management of deviance” and “the sequential organization of interaction between teachers and pupils” (Hester & Francis, 2000, p. 9), these studies examine the achievement of the interactional formats of educational practices, and the skilled management of cohorts of students (McHoul, 1978; Payne & Hustler, 1980). Interactional formats include, for instance, the familiar expectancies that students are to speak only when invited to do so by the teacher, and otherwise design their embodied presence as being within certain classroom limits (e.g. Macbeth, 1990). A prototypical topic here would be the initiation–response–evaluation (IRE) sequence, characteristic of much classroom interaction (e.g. Mehan, 1979), and the organization of repair and correction (Macbeth, 2004; McHoul, 1990). Closely related is *the production of classroom activities and events*; how for instance lessons and other educational activities or elements within them are initiated and brought to a close, and how they are collaboratively sustained as the recognizable activities they are (e.g. *A study of the work of teaching undergraduate chemistry*, in Garfinkel, 2002). A fifth theme, most closely affiliated with the work presented here, is constituted by studies of *the practical organization and accomplishment of academic knowledge*.

Hester and Francis note that this last topic has been relatively neglected in ethnomethodology. It could be argued that much of the work has been concerned with aspects of educational settings other than the learning, instructional work, and disciplinary knowledge that in a sense form the focal concern for teachers and students much of their time. In a characterization of the sociology of education outside ethnomethodology, but which can be brought to bear on some of the work within this tradition as well, McHoul and Watson write:

Classroom interaction studies have typically overlooked—whilst at the same time inevitably counting upon—what for the interested parties in a given scene (there and then) are the characteristic, distinctive and essential features of their activities, namely those of teaching and learning about ‘subjects’ as incarnate in ‘lessons.’ This might be termed ‘education’s essential work.’ Furthermore, for interested parties, the ‘quiddity’ of the lesson comprises what this lesson, here and now, involves, as a particular in situ realisation of that work. (1987, p. 284)

The rough taxonomy presented by Hester and Francis, however, should not be read as a list of mutually exclusive fields of study. For instance, an interest in interactional formats may very well be instrumental in an examination of the ways in which those formats structure the practical accomplishment of academic knowledge. Consider, for example, the IRE sequence. On the one hand, educational practice can be examined for the ways in which IRE sequences are achieved and upheld in classroom interaction; an analysis of how deviations are sanctioned, for instance, could provide insights into how pupils learn to recognize and collaboratively produce the recognizable things called lessons. On the other hand, the use of the IRE sequence could be analyzed for the ways in which its format makes available to students some sense of what the lesson is about, and furnishes a position in which a contribution to a topic not yet mastered or fully known can be made. The question and the ensuing and awaited evaluation provide an interactional niche into which learners’ contributions can be fitted, and which allows for a treatment of those contributions as, provisionally, mathematical. The precise formulation of the question in relation to the answer, and of the evaluation in relation to both, can be inspected in different ways by student and teacher to find resources for their respective tasks; for the student to understand something of the mathematics that is being asked about, and for

the teacher to see in just what detailed ways the answer is to be corrected, modified, or elaborated, or how the question may need to be restated for a given something to be communicated. Scholarly thinking along these lines has perhaps been most clearly developed by Douglas Macbeth. As for the IRE sequence, Macbeth characterizes this format, the question with the known answer, as a “workhorse” of direct instruction. The IRE sequence, in short, is one method through which knowledge and competence can be “leveraged into view, and use” (2000, p. 24):

In the interactional coherence of things like turn taking and assessments, worlds are brought into view as well. Talk-in-interaction achieves not only an analyzable order of interaction, but an ordered world of sensible action and common understanding. (p. 26)

The combined interests in interactional work and the ways in which knowledge and competence are made visible amounts to an approach to the study of education characterized by Macbeth as a “sociology of instruction” (1994, p. 312). Such a sociology explores how social worlds are constructed as “fields of structure, meaning, and gestalt that can be taught and learned” (p. 314). Elsewhere, Macbeth (2003) refers to this approach as affording *naturalistic* analyses of educational settings. The term *naturalistic* is introduced in order to make a distinction with critical discourse analysis, which signals, again, an ethnomethodologically indifferent perspective on the practices under scrutiny. Apart from discussing critical theory as applied to education, Macbeth describes how the tradition of naturalistic analysis, when it first emerged, effected a radical shift in how competences and skills in educational settings were conceived, and how they could be studied. The shift can be characterized as involving a repositioning of skills and competences as visible, public, and concrete, as opposed to hidden, private, and accessible only through formal analysis and theoretical conjecture. In an appraisal of Hugh Mehan’s (1979) *Learning Lessons*, Macbeth formulates the matter thusly: “things like competence and its interactional work—and they were ‘things’ now, ordinary, vernacular things—were available for study precisely because they were themselves public fields of action” (2003, p. 243). Thus, one can see teaching and instructional work, as well as the work of being instructed, as accomplished through instructors’ on-line analysis of the visible actions of learners, and concomitantly through

learners' analyses of the actions of instructors. As Nishizaka observes of the embodied work of violin instruction:

The teacher's positive evaluation is based on what the child actually did in front of the teacher, not on any kind of inference from the child's behavior about what takes place inside the child. Indeed, whatever (experiential or neurological) processes or events take place inside the child is irrelevant to the evaluation of the child's completion of a task. (2006, p. 122)

In a very pragmatic sense, then, access to internal mechanisms, schemata, or mental models as explanatory resources fails to surface as a methodological and analytical issue, for the very simple reason that such access is denied participants as well. Instead, studies within an ethnomethodologically informed sociology of instruction take advantage of the visibility of practical action, its observable-reportable (Garfinkel, 1967) character, and describe the public, phenomenal fields in which participants in educational settings operate. The approach can be said to be a praxeological one, which locates the analysis of cognition and understanding "in the orderly production and recognizability of actions as they are designed, dealt with and, if necessary, repaired by participants" (Mondada, 2006, p. 118; cf. Goodwin, 2000; Moerman & Sacks, 1971/1988; Sacks, et al., 1974).

Studies consonant with this approach have been conducted in several settings, within and outside institutionalized education. They include analyses of science education (Amerine & Bilmes, 1988; Koschmann & Zemel, 2009; Lindwall & Lymer, 2008; Lynch & Macbeth, 1998), mathematics (Greiffenhagen, 2008), second-language learning (Lee, 2004), geography (McHoul & Watson, 1987), handicrafts (Ekström, Lindwall, & Säljö, 2009), violin playing (Nishizaka, 2006), archaeology (Goodwin, 1994), dentistry (Hindmarsh, Reynolds, & Dunne, in press), surgery (Koschmann, Lebaron, Goodwin, & Feltovich, in press), control room practice (Hindmarsh & Heath, 2000), aviation (Melander & Sahlström, 2009), the use of mobile phones (Weilenmann, 2010), and numerous other subjects and settings. Taken together, this body of work testifies to the domain specificity of the modes of reasoning, perception, skill, and embodied action that make up the shop-floor practices of instructional work, whether this work is done as the focal business of educational professionals, or as seemingly peripheral aspects of workplace interactions and everyday activities.

The contribution that analyses of this kind may make is not in the first instance normative; they do not in themselves provide formulations of what ought to be, but rather enrich and nuance extant understandings of how the analyzed practices work. However, as exemplified by for instance, developments within fields such as Computer Supported Collaborative Work (CSCW) and Human-Computer Interaction (HCI), ethnographic and ethnomethodological research may function as a valuable conversational partner in efforts to design and reform practice (cf. Button, 2000; Dourish, 2006). As Hester and Francis note:

If ethnomethodological studies of technology are taken as precedent [...] then professional educationists may find more of practical relevance in ethnomethodological studies of the detail of educational activities than can be found in other kinds of sociological work. Arguably, it is through such detailed inquiries that ‘self-reflection’ and hence improved practice may best be promoted. (2000, p. 7)

Study 4 ventures in a design oriented direction, adopting an approach informed by design ethnography in CSCW and HCI to tentatively suggest design implications that may be drawn from the inquiries into details of practice making up the core of the study. The contribution of the thesis, however, lies more in “the ways of thinking it supports” (Dourish, 2006, p. 549) than any directly prescriptive implications that may be formulated based on those ways of thinking. Its logic, thus, is primarily analytical and empirical (*ibid.*).

In the empirical work making up the body of this thesis, the ethnomethodological approach to instruction sketched above will be applied to analyses of instruction in architectural education. Architecture, as a historically developed practice and discipline and as an educational concern, will be the topic of the following two chapters.

CHAPTER 3

RENDERINGS AND REASONING IN ARCHITECTURE

This chapter first outlines some developmental threads in the practice of architecture—changes in the professional status of the architect, and in the ways in which educational practices have been organized in relation to these changes. Second, studies of architecture in the present are reviewed. The historical account serves the purpose of placing the current modes of architectural reasoning and assessment in context. It highlights in particular the role of representations and inscriptions so prominent in present day critique—the objects scrutinized in the design reviews are assemblies of elaborate inscriptions, rather than the concrete, brick, steel, and glass of which the built environment is made. In sum, this chapter sketches the interrelationships between *renderings and reasoning* (Ivarsson, 2004) in past and present architectural work.

AN HISTORICAL BACKDROP

Critique as conducted in 2007 at a Swedish school of architecture is a practice resting on a long tradition. While the critique event in its present form originates in the École des Beaux-Arts in Paris in the nineteenth century (Anthony, 1987), some of the modes of assessment employed, the issues made relevant in the critique, and the understandings of competent practice for which students are made accountable, have socio-historical counterparts in ancient Egypt, Greece, and Rome. The ways in which architectural knowledge is constituted and made relevant in the video-recordings analyzed here thus represent the current state of a developmental process with a rich and multifaceted background. In some respects, what

has counted as architectural knowledge and competence has been remarkably consistent through the documented history of the profession. There have, however, been some significant fluctuations, in particular in the position of the architect vis-à-vis builders, influencing the ways in which the relation between theory and practice in the discipline has been conceived; that is, the extent to which architecture has been thought of as something distinct from the mastery of building.

In ancient Egypt, the replacement of wood and clay by stone as the prime building material, at least for the larger structures of royal tombs and palaces, introduced the need for technical specification of the measures of individual blocks, which were often quarried and cut far from the building site (Kostof, 2000b). As Turnbull notes, “drawing of some kind is a necessity for instructing the other masons how to cut the stones and where to lay them” (1993, p. 321). Building could no longer proceed in an ad hoc fashion with the materials at hand. Specialized professional bodies of knowledge tied to this more theoretically informed mode of building emerged. Similar to later incarnations of the architectural profession, architecture was thought to span vast areas of competence and skill. The deity to whom architects devoted their reverence was Seshat, “Lady of the builders, of writing, and of the House of Books” (Kostof, 2000b, p. 6). Sometimes, Seshat was replaced by Thot, who was the god of science, and in other sources by Ptah, the god of crafts. This constellation, Kostof observes, “neatly scans the total scope of architecture, from pure theory on the one hand to the practical knowhow of construction on the other” (ibid.).

All formal education, including that of architects, was tied to the priestly class, and in many ways organized through direct lineage. Knowledge of design and building techniques was passed down from father to son, engendering successive generations of architectural dynasties (there is a record of 25 generations of architects, from Kanofer and his son Imhotep, to Khnumibre in the fifth century B.C.). The knowledge held by Egyptian architects seemed to have involved the design skills required for calculating proportions and shapes of buildings, devising graphical representations on papyrus, leather, or wood, as well as a command of the building techniques necessary for their function as “overseer of works.” The same individuals, who were highly esteemed, and lived and worked close to the pharaonic circles, were regularly in charge of both design and construction.

Many of the remnants of detailed architectural representations found may therefore have been made for the architect himself—there was no need for anyone else to know the full specifications of the project. The scale of these projects, however, seemed to have required that building tasks were delegated—there is evidence of the use of temporary representations and designs, drawn on flakes of limestone, that were probably handed to lower ranking builders on the site. Already at this early point in the history of the profession, then, design tasks were at least in part distinguishable from the work of building. This engendered versions of the prototypical work practices associated with modern day architecture—those of devising graphical representations, which were used to communicate and at least to a degree specify the design for the purposes of collaboration with other disciplinary niches.

It has been a somewhat contentious issue whether or not, or to what degree and in what ways, graphical representations were used by architects in antiquity and during medieval times. Some have argued that Greek architecture was so standardized and bound to tradition that the architect did not need plans or elevations, but rather worked on-site as a “master craftsman,” or master-carpenter, which is the original meaning of the word *architecton*. Specifications were, in this view, given verbally to the stonemason at the building site. Kostof questions this theory, and points to, among other sources, Vitruvius, whose *Ten Books on Architecture* (Rowland & Howe, 1999) was an attempt to provide a summary of classical architectural knowledge. As much of this was based on a Greek tradition, “it is very improbable that a chronicler so anxious to record the traditional knowledge of his profession would neglect to point out the peculiarity of an exclusively verbal communication between architect and builder if this had been the case” (Kostof, 2000b, p. 15). In Roman architecture, there is ample evidence of the use of graphical representations. It was at this time that the primary representational tools used by architects were first systematically described:

Design is the apt placement of things, and the elegant effect obtained by their arrangement according to the nature of the work. The species of design, which are called *ideai* in Greek, are these: *ichnography* (plan), *orthography* (elevation), and *scenography*. *Ichnography* is the skillful use, to scale, of compass and rule, by means of which the on-site layout of

the design is achieved. Next, *orthography* is a frontal image, one drawn to scale, rendered according to the layout for the future work. As for *scenography*, it is the shaded rendering of the front and the receding sides as the latter converge on a point. These species are produced by *analysis* and *invention*. *Analysis* is devoted concern and vigilant attention to the pleasing execution of a design. Next, *invention* is the unraveling of obscure problems, arriving, through energetic flexibility, at a new set of principles. These are the terms for design. (Vitruvius, 1999, pp. 24–25)

The education of Greek architects was reserved for the upper classes—as were most forms of institutionalized education—and included a theoretical liberal arts part, as well as practical apprenticeships at architectural work sites. Often, Greek architects would begin their education in a practical building-craft, or even sculpture, in parallel with attending a private tutor who taught the classical disciplines (art, philosophy, rhetoric, etc.). There are also records of professional schools, organized by practicing architects (Kostof, 2000c). The various fields of knowledge the command of which Vitruvius described as required of the Roman architect have already been noted. There seems to have been a somewhat wider range of possible career paths in the Roman Empire. Architects could be recruited from the ranks of military engineers, and even slaves were likely to have been allowed to climb within the hierarchies of the imperial civil service to positions as architects (MacDonald, 2000). For all these, however, training involved extensive theoretical study as well as knowledge of the practicalities of construction.

During medieval times, there is some evidence that the theoretical side of architecture dwindled to some extent. While the Byzantine tradition preserved an academic education for what they termed the *mechanicus*, as opposed to the more practically oriented *architekton*, Europe, and it seems also medieval Islam, saw no need for theorists in building. There was no longer a clear line to be drawn between architect and master mason. Instead of the learned gentleman architect of Vitruvius, the medieval architect “rose from the ranks of the building crafts, carpentry or the working of stone or commonly both, and took part in the actual process of construction alongside the building crew as one of their own” (Kostof, 2000a, p. 61). According to some historians, the classical representational tradition of ichnography, orthography and scenography was not resurrected until the

thirteenth century. Instead, the architect/builder laid out the plan in full scale, directly on the ground of the building site. The erection of stable structures based on this layout would then be guided by routine practice as exercised within the guild where the architect had been trained (*ibid.*).

Turnbull (1993) maintains that even such grand structures as Gothic cathedrals, such as the one in Chartres, were products of “ad-hoc collective work” (p. 315) rather than of the execution of a detailed master plan. The cathedrals employed several generations of teams of builders, in a context where there were no standardized common measures to coordinate work and provide continuity in the building process. A solution to this was the use of templates, patterns outlined on thin pieces of wood, used by a stonemason to cut particular standardized shapes of stone. Turnbull writes:

This small item of representational technology has much of the power of a scientific theory; it manifests the integration of science and technology and theory and practice, and it is a solution to the central problem of how knowledge was transmitted. It was the use of templates, along with constructional geometry and a relatively small range of simple tools—compasses, straightedge, and string—that, in an experimental context, enabled the construction of extremely high, radically innovative buildings without a common system of measurement and, in the early Gothic period, perhaps without drawn plans and without continuity of architects or design. (p. 317)

Looking at Chartres, one finds a messy and “bewildering variety of buttresses, fliers, roofs, doors, and windows” (p. 318). From standardized shapes of stone, cut with the help of templates, and organized according to simple geometric rules rather than calculations of the magnitudes of forces in the construction, enduring and stable structures could be erected. “The kind of structural knowledge passed on from master to apprentice related sizes to spaces and heights to ratios, such as half the number of feet in a span expressed in inches plus one inch will give the depth of a hardwood joist” (p. 323). The transmission of this kind of practical knowledge was organized through lodges, which were originally buildings on the construction site where the stonemasons worked. These lodges gradually transformed into cooperative institutions for the reproduction of knowledge and skill “through apprenticeship, mutual exchange, and accumulation” (p. 329)—

the *guilds* that for a long time organized professional practice and training in medieval Europe.

In the later part of the cathedral-building period, in the middle of the 13th century, the classical technologies of plan, elevation, and perspective were rediscovered, and the role of master mason changed to that of architect; “theory became divorced from practice, and skill became expertise” (p. 330).

As the social and professional status of the architect rose, the mason dropped gradually into the role of serving merely as a builder for the architect. As execution and design became separate, the education and training of the mason and the architect became distinct. A new-style gentleman architect emerged who did not serve an apprenticeship but learned from books and thereby avoided the taint of being, or associating with, craftsmen. (p. 331)

The renaissance saw a further chiseling out of the professional status of the architect as distinct from masons and carpenters. In reviving Vitruvian ideals of architecture as a liberal art, architects of the day strived to distance themselves both from the purely practical building crafts, from the sculptors and painters, but also from those who knew nothing about the practical side of construction. Architecture’s distinctiveness lay in the combination of these varied competences as exercised in practical application to the art of building. An increased distancing from the building site, and a position in which the often detailed requirements set out by the wealthy patrons were transformed and communicated to the building professionals, led to an increased reliance on drawings and models (Wilkinson, 2000).

In 1671, the Academie Royale d’Architecture was established, as the first formalized program for the training of architects, devoted to providing the royal building administration with skilled designers (Rosenfeld, 2000). For a long time, even into the 20th century, such academic educational institutions lived alongside more traditional forms of apprenticeship training. Due to a lack of formal certification, “architects” were often builders or contractors who took care of all the stages from design to construction, but without formal training in any of the architectural schools (Draper, 2000). The revolutionary government closed The Academie Royale in 1793, but the school was later reopened as the Institute de France. In 1807 the École des Beaux-Arts was formed as a separate academic school devoted to archi-

ecture (Blackford Mewburn, 2009). The school was organized in ateliers each led by a practicing architect or professor who passed on his knowledge of architecture by working closely with the students, giving feedback and instruction as they worked on their assigned projects. The Ecole attracted many students from other European countries, as well as the U.S.; when architectural academic institutions were formed all over the world, they were to a large extent modeled on the Beaux-Arts system (Draper, 2000).

This system privileged drawing, aesthetics, and design, and involved a further distancing from direct experience of building so important in earlier forms of architectural training. Debates began concerning how best to deal with the relation between theory and practice in architectural education. As we have seen, this relation has been a central issue fraught with contention throughout the history of the profession, and it continues to this day. Cuff (1990), for instance, questions the separation of design work from the realities of compromise and negotiation of working life (see the next section); and architects' lack of knowledge of both construction and user needs is often lamented (see e.g. Brown & Moreau Yates, 2000). The move to the academy, however, was not simply a move from practice to theory, but a move towards the establishment of partly new forms of practice, with a stronger emphasis on representation and inscription:

The role of architectural representations became, over time, more prominent until it took over from the oral practices of the guilds and became the primary site for the epistemological practices of the profession. In formal education, the representation became the primary means for students to deploy and display learning and develop design judgment. (Blackford Mewburn, 2009, p. 23)

STUDIES OF CONTEMPORARY ARCHITECTURAL PRACTICE

While the historical studies recounted in the previous section by necessity were archaeological in nature, the present state of architectural practice is readily researchable by means of methods of direct observation. Rather than opting to be “archaeologists by choice” (Cicourel, 1964) and studying textual traces and residua of architectural practice, many researchers have applied various forms of ethnographic and video-analytic methods to the topic. In this section, therefore, we turn to research that lies closer in its

methodology and analytical approach to the studies reported in this thesis. In a study of architecture in the U.S., Cuff (1990) analyzes current architectural practice through interviews and observations at several architectural firms. One central part of the study is an analysis of the deeply collaborative ways in which architectural design is organized in the current context. The architect, it is shown, must be able to balance the interests of multiple actors in complex processes of negotiation. Perhaps a passage from Forester can offer a characterization of the complexities Cuff intends:

Designing takes place in institutional settings where rationality is precarious at best, conflict abounds, and relations of power shape what is feasible, desirable and, at times, even imaginable. By recognizing design practices as conversational processes of making sense together, designers can become alert to the social dimensions of design processes, including organizational, institutional, and political economic influences that they will face—necessarily, if also unhappily at times—in everyday practice. (1989, pp. 120-121)

In line with this account, Cuff argues that the enduring image of the lone designer is a myth, and potentially damaging to the education of architects; as an individualistic bias characterizes much of the organization of architectural education, students may be insufficiently prepared for the realities of the working life. Even though attempts can be made to incorporate elements of authentic interdisciplinary interactions, it is safe to say that the full complexity depicted by Cuff would be impossible to model in the educational practicum. The focus appears to be, as Cuff notes, on design, rather than, for instance, negotiation and the complexities of collaboration in interdisciplinary project groups. Even if these things remain outside the core of architectural education, educators are by no means oblivious to them; Cuff observes that “users” tend to appear through instructors and critics acting as proxies, enacting versions of what a user would see, think or do in response to the suggested architecture. For the purposes of this study, rather than suggest a fault by comparison to the ideal reality of user interaction, such an observation points to a potentially interesting topic of study. How do instructors make relevant the interdisciplinary realities of architectural practice, given the relative absence of those realities in training in comparison to “the real thing”? Study 1 touches upon these issues.

A systematic examination of the enacted presence of users or clients in the practice of critique, however, remains outside of the scope of this thesis.

Cuff examines what she describes as the *culture* of architectural practice. Participant observation, ethnography, and interviews form the basic means through which the object of study is worked up as a representation of this culture. A different and complementary view of architectural work is gained by studies making use of recordings of naturally occurring interactions at architectural work-sites. The particular issue of cross-disciplinary interaction in architectural work is examined by Hall, Stevens, and Torralba (2002) in a study of collaborative work on the redesign of a public library. In the analyzed case, architects work closely with structural engineers and preservationists on design problems, which brings their differing perspectives and competences into contact, and at times, conflict. The analyses show how discipline-specific forms of perception and action result in interactions where it becomes evident that, “participants from different disciplines understand and use what might appear to be the same objects or concepts in quite different ways” (p. 204).

Another concern in studies of architectural work has been the products and processes of design. Medway (1994; Medway & Clark, 2003) introduces the notion of the *virtual building*. The concept aims to capture how the product of design is a hybrid object consisting of plans, drawings, models, and arrays of discursive formulations that provide for the logic, motivation, and significance of the physical artifacts. This concept in a sense decentres the physical built environment, and highlights the representational and inscriptional character of architectural work. Regarding the virtual building, Medway and Clark remark:

There is no doubt that this imagined building [...] despite being unreal in a physical sense, is a solid social fact, something known, often in great detail, to participants, both inside and outside the office, in the activities that cause the building to get conceived, financed, approved and built. (2003, p. 256)

These virtual buildings are seen as material *and* semiotic objects, which are produced “through the performance of innumerable semiotic acts” (p. 270). The analyses thus emphasize the role of language in design (cf. Fleming, 1997, 1998). These ways of thinking provide part of the incentive for

Study 2, which explores how participants treat some of the interrelationships between designed material artifacts (models, plans, drawings) and the ways in which those artifacts are formulated in student presentations. Iedema, in a study of the planning and design of a hospital, provides another apt formulation of the linguistic, conversational, and inscriptional activities constituting design work: “[A] project gradually moves from temporal kinds of meaning-making, such as talk and gesture, towards increasingly durable kinds of meaning-making, such as printed reports, designs, and, ultimately, buildings” (2001, p. 23).

This deeply inscriptional and representational character of architectural design work, in which projects gradually take shape through an iterative process of production and refashioning of inscriptions—what Iedema calls *resemiotization*—has also been a concern within social studies of science. With a background in studies of laboratory work, such as the research into visualization practices conducted by Lynch (1985), Yaneva (2005) examines how architects work with models and other representations, focusing on the constant back-and-forth movement between different scales in the gradual working up of the project. In a similar fashion as with Medway and Iedema, the designed object is said to emerge in and as manipulations of, and shifts between, different representational forms:

Resulting from a rhythm with fine undertones of variation and distance, acceleration and slowing down, it appears as something quasi-unreachable and at the same time ever-present in all models and states: a multiple, cumulative object visible through all of them and in the movements connecting them. (Yaneva, 2005, p. 888)

A central point is that a project is never solidified and set as one final representation, but rather exists in the juxtaposition of different scales and renderings, none of which individually constitutes the final version. One might add to this that practices of the kind examined in this thesis, presentations of proposals, involve a provisional reduction and settling of the presented project for purposes of communication. The presentation thereby becomes a central designed object in itself. It may therefore be seen and assessed for the ways in which it mediates the hybrid virtual building, which otherwise exists in and as the cumulative and juxtaposed collection of models, drawings, histories, motives, and discursively formulated

rationales constituting the project as a whole. The presentation event in a sense epitomizes the position of architects as designers of representations, in contrast to the master-builders or foremen of foremen of Antiquity.

The details of architectural reasoning have been examined by Murphy (2004, 2005), in a set of studies closely affiliated with the approach developed in this thesis. These studies explore design activities at an architectural firm and discuss, among other things, the central phenomenon of *imagination* in design. In consonance with Medway's way of seeing imagination as constituted through the "innumerable semiotic acts" of drawing, talking, modeling, arguing, and negotiating, this mode of architectural reasoning is construed as a material, discursive and public phenomenon. Imagined things are not conceived as mental, private, or otherwise characterized by theoretically problematic relations to any putatively external world, but as constituted wholly *within* material and social practice:

These objects of thought [...] are not mental images in the traditional sense of what constitutes imagination, but rather are built by combining external semiotic media, specifically talk, gestures, and architectural drawings, and using the meaningful intersections among them to situate imaginary things in social space and make them publicly available for comment and manipulation. (Murphy, 2005, p. 140)

Similarly, when instructors and students in the analyzed materials talk about properties of buildings, spaces, landscapes, or other things not immediately present, these are made available for comment, either through their representation in the physical materials of student proposals, or through their being suggested as hypothetical developments of the designs at hand. Imaginative practice and hypothetical reasoning can, along these lines, be considered to be, at least for the practical purposes of criticism, a public, material, and intersubjectively accountable exercise. The discursive, gestural, perceptual, and material elements are demonstrated to be integral parts of the specifically architectural modes of reasoning that constitute design work (see also Mondada, 2006).

Imagination is also explored in Büscher's (2001, 2006) studies of landscape architects at work. Büscher observes how, in the performance of landscape architecture, "there is a continuous flow of formulations that shapes the imaginative vision of new landscapes" (2001, p. 224). Materiality is accorded a central role: "a mixture of tools, visualisations, objects, percep-

tion, embodied action, description, and imagination is a pervasive aspect of ongoing action and a tangible feature of [landscape architecture]" (p. 1). Thus, material objects of diverse kinds can be seen to "sediment on work surfaces and walls in the studio, leaving traces of how ideas developed" (ibid.). In her analyses of design work, Büscher furthermore shows that such traces are not only external debris of mental processes; rather, the development of ideas takes place within these equipmental complexes as, again, public, material, and embodied inquiries.

This brief review of studies of architectural work provides a sense of the goal of architectural education, the target of the learning and instruction that goes on within the educational institution. It is shown as multifaceted, organizationally complex, and characterized by a high degree of interconnectedness with actors and institutions outside the confines of the architectural profession, but also as based on its own quotidian work practices—the manual-and-discursive work of design, the mundane drawing and talking-and-gesturing that make up the shop-floor practice of architecture. Critique, it would seem, constitutes a setting in which these disciplinary realities may be made visible, mediated through the professional discernment of instructors and practicing architects recruited from working life.

CHAPTER 4

CRITIQUE AND INSTRUCTIONAL WORK

It was noted that the *École des Beaux-Arts* is considered the starting point of modern-day academic architectural training. The *Ecole* was also the place where the first forms of formalized critiques or juries were held. Originally, the studio master presented his students' projects, and argued for their qualities before a board of appointed specialists. Over the course of the 20th century, this form of jury event developed, via closed student-jury critiques, to the public events that today are implemented in schools of architecture all over the world (Webster, 2005). This development can be said to have gone hand in hand with a change in the intended function of the critique; the practice is increasingly seen not only as a way of assessing student work, but also as a central instructional practice.

NORMATIVE STUDIES OF CRITIQUE

As noted in the introduction, the lion's share of the research done on critique is conducted by and for educators within architecture, with the overarching goal of improving and evaluating existing practice. In a widely cited interview and questionnaire study, for instance Anthony (1987) explores students' and teachers' views of the pedagogical significance of critique. It is concluded that alarmingly few of the students report that they perceive critique as a productive learning experience. Many students experience public criticism of their work as stressful, to a point where feedback intended to be formative will "fall on deaf ears" (Blair, 2006, p. 83). Anthony suggests a number of improvements to the organization of critique in order to address the perceived problems. Wilkin (2000) also

reports an interview study with partly overlapping findings. However, the author notes that students and instructors alike do perceive critique as potentially offering an opportunity to learn. Negative attitudes are reported to be more pronounced with first-year students compared with later years, indicating that students over time become better at or more used to taking critique. Redesign and improvement are suggested, especially with regards to specifying learning goals and assessment criteria—there is said to be an element of unpredictability in critique that makes students unsure of how to prepare for, and respond to critique. This observation is made in several other studies as well. Frederickson (1990) reports a study based partly on video recordings of critique. The author notes a set of problems, things that can go wrong in the “lines of communication” between critics and students during the sessions, and which thereby counteract the pedagogical potential of critique. Jones (1996) makes similar kinds of arguments, and is largely critical of the design review as a form of assessment.

Many of these normative studies place the perceived problems of critique with the critics—in their ways of acting, their failures to articulate their grounds for criticism, or their failing to be properly constructive in the feedback they give. Several authors, however, also note the ways in which students act in the sessions as co-constitutive of the observed problems. Frederickson (1990), for instance, notes that a defensive frame of mind and lack of “listening skills” may impede the development of productive interactions during the critique. A study of critique in fine arts education (Mitchell, 1996) could also be mentioned; this study focuses on the ways in which students respond to critique. Among other things, the study discusses different approaches students may adopt in responding to critique and to questions from tutors. It is argued that students’ reluctance to explain and articulate ideas behind the artworks subvert the potential of critique to be productive and conducive to learning.

Although not focused on in this thesis, findings within the project of which this thesis is part can shed some additional light on these issues. Observations suggest that an element of instructional work directed at framing the critique goes on in the sessions themselves (Lindwall, Lymer, & Ivarsson, 2008). In situations where students respond defensively, critics may engage in meta-talk about critique, saying things like, “don’t see critique in that way,” or otherwise formulate the intended significance of critique.

Sometimes, before the reviews of the day start, the teachers responsible for the course talk about the practice of critique and how it is viewed from the perspective of the school, providing students with suggestions of how they may think about the feedback they get. Taking into account Wilkins' findings that indicate an increased appreciation by students of critique through their study years, these tentative analyses suggest that repeated exposure to criticism, combined with explicit instruction concerning the nature of critique, and how it should be regarded and taken up, may contribute to a gradual learning of productive ways of acting at the sessions. It may be that students over time "learn to learn" from critique.

CRITICAL PERSPECTIVES

One strand in the normative work on critique is represented by studies taking an explicitly critical perspective on the practice, where concerns with improving educational practice are accompanied with elements of critical theory. Such analyses of instructional practice are not confined to studies of design; parallel discussions can be found across a wide range of educational settings. The epistemic asymmetry inherent in such settings, it seems, lends itself well to analysis in terms of inequality. Academic supervision has been described in terms of master-slave relations (Grant, 2008), science labs as inclining students to "bow to an economic imperative and an ownership relation" (Beach, 1999, p. 164; see Lindwall, 2008, for a discussion), and evaluations of medical students' actions by instructors as "techniques of control" (Fairclough, 1989, p. 45). In relation to the latter, Macbeth remarks, "that novice medical students would be told how to proceed in learning their medical practice seems to carry the burden of this analysis of 'control'" (2003, p. 254). That is, the very notion of an educational situation seems to ensure the analytical availability of inequality, subordination, and the exercise of power. The practice of critique in architectural education is in a sense particularly amenable to such readings. It contains directive judgments and evaluations of students' work, sometimes phrased in ways that can be heard as harsh; the artistic elements of architectural competence seem to lend themselves poorly to objective evaluation; the relation between the verbal practice of criticism and the actual work of architectural design is difficult to trace; and students often report stressful emotional

experiences in connection with the public examination of their work. Accordingly, there is a recurrence of studies where critique is characterized as a “tribal ritual” (Dannels, 2005), a “ritualized legitimation procedure” (Vowles, 2000), or similar constructions, which in a sense strip critique of its intuitively apparent function as an instructional practice.

The critical way of approaching the practice of critique can be further exemplified by taking a closer look at a set of studies reported by Webster (2005, 2006, 2007), which discuss the pedagogical value of critique and propose a set of alternative assessment methods for architectural education. As an argument for the need of redesign, a set of critique sessions are described as events in which “staff used their power to coerce students into reproducing staff-centered constructions of architectural *habitus*” (2005, p. 265). Critique is thus seen in terms of power and domination, rather than instruction. Webster does note that the observed critics do not enact the position of “hegemonic overlord” all of the time;

The findings suggest that the jury system should be understood as a rich and complex ritual that is neither essentially ‘bad’—constraining the subjectivities of the students by placing limits on oppositional discourse, reflective dialogue and critique—nor essentially ‘good’—enabling students to individually and collectively critically reflect on the way reality is perceived and understood. Rather, the jury system is a ritual that can be used to elicit conformity or to promote freedom. (2006, p. 295)

It is found, however, that the former constraining mode is much more common in the observed reviews. In addition, structural features of the critique serve to exacerbate the coercive aspects of criticism. Three such features can be noted, which are highlighted by the author as particularly problematic. First, there is a “staging of power,” in and through the spatial arrangement of participants:

[A] distinctive formal spatiality was created through the arrangement of chairs. Chairs would be placed in a fanning arch in front of the work of each student to be reviewed with the front row of chairs being understood as designated for the critics and the rows behind for the student’s peers. This directionality and hierarchical assignment of chairs, which one third-year student said “puts you on public display—it’s a scary thing because you are so open,” clearly spatialized the symbolic power of the critics. (2007, p. 23)

Second, the choreography of the sessions, in which students speak first, followed by critic response, “ascribed the power of ‘judgment’ to the critics” (ibid.). Furthermore, in often being allowed to sum up the critiques of the day, external critics are “given the power to ‘judge’ the currency of the atelier’s work within the contemporary discourse of architecture” (ibid.). Third, architectural discourse is implicated in the observed coercive practices; thus, “the symbolic power of the critics was signaled by their ability to ‘talk the talk’ and their right to define the words that can be used to describe and define architecture” (ibid.).

On the basis of observations such as these, in conjunction with students’ reports about design reviews as stressful events, Webster describes critique practice as “a ritualized performance that, through its coercive choreography, functions to ensure that students subordinate their own pre-existing *habitus* in favour of assuming the *habitus* of their tutors” (2005). Rather than work as an instructional practice—a characterization reportedly insisted on by all the interviewed critics (Webster, 2007)—critique as currently enacted has to a large extent become a ritual serving the exercise of power.

Webster aims to characterize a setting where individual freedom and creativity intersects with established tradition, and with knowledge that is owned (cf. Sharrock, 1974) by representatives of an existing discipline. A blanket rejection of criticism is not suggested; Webster notes that, “subjects construct and reconstruct their identities within social settings and these settings are inevitably both conceptually and materially constraining” (2006, p. 295). Rather, it is in the interests of adjusting an empirically observed situation, which is perceived as being askew, that reform is suggested; that is, a situation where the directive elements necessary for instructional work have in a sense been eclipsed by their coercive, darker, side. The theoretical frameworks into which empirical observations are subsumed, however, in “stipulating in advance the empirical centrality of matters such as power and control” (McHoul & Watson, 1987, p. 284), run the risk of inviting a reading in which the coercive elements noted are connected to the general idea of critical assessment, rather than some versions of its situated enactment.

The analyses also broadly align with what within ethnomethodology has been referred to as *ironic* accounts, in which the analyst imports “a conceptual scheme derived from outside the setting and beyond participants’

conjoint orientation to the setting” (Watson, 2009, p. 63) in order to describe the setting. Through such a scheme, observed practices “are assessed in terms alien to those through which they were produced” (ibid.). In a discussion of critical theory, Lynch observes that although the desire for a critique of power is warranted and understandable, “the overwhelming need to ascend to a more comprehensive, objectively based, and normatively grounded position from which to oppose the powerful forces of oppression tends to be realized by turning the field of study into a docile projection of a theoretical will” (1993, p. 34).

In this thesis, the analytic interest instead lies in understanding and explicating the endogenous rationalities that guide members’ actions. From such a vantage point, it appears that critique may be viewed, in the first instance, as an instructional practice. Thus, rather than “spatializing the symbolic power of the critics,” the physical arrangements of the room and the participants can be seen as spatializing the forms of instructional work that critique is intended to provide. The critics’ demonstrated competences for conversing fluently in architectural language, and their position of authority in relation to practices of formulation, may similarly be understood as connected with pedagogy, rather than with simply being able to “talk the talk.” And instead of describing the sequential formatting of critique as “ascribing the power of ‘judgment’ to the critics,” one could characterize it as a spatiotemporal solution, which allows architectural *judgment*—without quotation marks—to work on the totality of the presented proposal. The presentation–critique format makes possible for instance the assessment of the verbal presentation; the assessment of the relation between stated intentions and the design proposal; and furnishes the necessary clarifications and formulations of the proposal that the images on the posters alone may fail to convey. The next section will further discuss critique as a form of instruction, drawing from studies that have analyzed the details of interaction in different learning settings.

CRITIQUE AS INSTRUCTIONAL WORK

The ethnomethodological perspective sketched above suggests that the instructional work of critique, as a form of practical reasoning, must be seen as built from perceptual, embodied, material, as well as discursive facets of action. First, a few notes on discourse is in order. There is a substantive number of studies which focus the ways in which participation in design reviews requires mastery of specific genres of architectural language (e.g. Dannels, 2005; Dannels & Martin, 2008). The emphasis is on language as a tool for presentation, often treated as distinct from design competence. Swales et al. (2001) note the importance of metaphorical commentary in presenting designs, and suggest exercises whereby students are to practise in formulating descriptions of their finished proposals. Morton and O'Brien (2005) similarly focus on the verbal element of critique, and explore and contrast two different pedagogical models through which students might become better at "selling" their work.

Although sympathetic to these concerns, this thesis does not topicalize the language of the critique primarily as tied to the presentation and selling event. Rather, I consider the ways in which language may be conceived as a central component of specifically architectural modes of reasoning, which are by no means confined to the critique setting. The perspective developed by Medway, as already sketched, provides one entry point to such a way of thinking. Fleming (1998) takes a similar approach, in an analysis of talk in graphical design critiques. He notes how language has a number of functions in design work which, rather than simply communicate designs, seem to *constitute* them; language, it is argued, "functions to suggest, establish, modify, and regulate material objects" (p. 45).

Conceptual and linguistic aspects of creative work are also present in Phillabaum's (2004) studies of critique in photography education. A set of recurrent repertoires of speaking, or speech genres, is identified, which have a bearing on the materials analyzed in this thesis. First, students and instructors talk about photographs as *formal objects*, according to technical specifications (hue, saturation, contrast, composition etc.). Second, participants talk about photographs as *ideas*, articulating the artistic and intellectual meaning of the print, either in terms of students' intentions, or as the values read into the prints by instructors and peers. Language then enters as

an important component of the practices by means of which photography is taught, learned, and exercised; language, Phillabaum argues, is “central to how apprentice photographers calibrate a professional vision toward the objects and environments that are consequential to that profession” (2005, p. 148).

In a related way, Schön (1983) describes architectural design critiques, and design work itself, as shot through with linguistic formulations of choices, rationales, and expressed intentions, suggesting the notion of *reflection* to account for this phenomenon. These empirical findings are used to build a general theory of professional competence, whose coherence and underlying assumptions have been the topic of criticism by a number of authors (e.g. recently by Erlandson & Beach, 2008). For the purposes of this study, however, it will only be noted that Schön’s empirical work shows an intricate relation between design language, the practice of drawing or designing, and the objects thus produced.

Embodiment and gesture is somewhat backgrounded in the work on critique practice, despite the ample demonstrations of its centrality for the accomplishment of interaction (see e.g. Goodwin, 2007a; Kendon, 1997; McNeill, 1992; Streeck, 2009), and also for teaching and learning (Roth, 2001). A few exceptions exist. As we have seen, Murphy (2004, 2005) has explored the use of gesture in architectural design work. LeBaron (1998), working within a tradition informed by ethnomethodology, analyses the use of gesture by students and tutors in a design studio. Similar to Murphy’s findings from professional architectural work, gesture is seen as a central resource for the accomplishment of architectural conversation, or “building communication.” Thereby, gesture also forms an integral part of “the formation and distribution of knowledge” (LeBaron & Streeck, 2000, p. 119) in architectural communities of practice. Problematizing the “disembodied” notion of reflective practice that Schön proposes as a way of accounting for design thinking, Blackford Mewburn (2009) argues for seeing gesture and embodiment as a way around Schön’s emphasis on linguistic articulation in instructional work. In a study focusing on university design and craft students presenting their works-in-progress to teachers and peers, Hindmarsh & Heath (2003) note the constitutive status of gesture and embodied manipulations of designed objects for the unfolding of the activity. When students present their works in progress, “a sense of the object as part

of an envisioned whole is achieved only when the gestures over, around and with [it] are analysed as they are produced and encountered—in real-time sequential order” (p. 49). One central lesson learned from gesture studies is that taking adequate account of embodied registers of action and interaction is important for understanding the work of critique. While the analysis of gesture will not be a focal concern in this thesis, a number of analytical and methodological consequences can be drawn from research that more explicitly focuses on gesture and embodiment. Issues of method are detailed in the next chapter.

There is a growing number of studies conducted in settings outside design education and critique, which can inform the present work. Goodwin, for instance, has explored interaction between newcomers and experts in various professional settings, analyzing the detailed actions through which disciplinary phenomena are articulated and made visible—feedback, corrections, and instructions, as these actions are performed within temporally unfolding and materially situated activities. More recently, this interest has been characterized as one of elucidating “the interactive organization of apprenticeship” (2007b). In these analyses, the joint perceptual inspection of material objects is seen as a central component of instructional sequences. In the seminal work on professional vision (Goodwin, 1994), the interaction between experienced archaeologists and newcomers to the setting is analyzed in close detail. Through a video-based analysis grounded in ethnomethodology and conversation analysis, the study explicates the practical work of giving and following instructions in the highly specialized modes of perception and action that characterize the archaeological field excavation site. In a similar fashion, the production of a certain type of fiber in a chemistry laboratory is seen as organized through practices where participants jointly attend to the details of the chemical process and assess, as well as instruct the assessment of, its developing status (Goodwin, 1997).

Stevens and Hall (1998) make similar observations of the work of engineers, and the development of “disciplined perception” of architectural drawings. Focused interaction, in which participants articulate the local interactional and professional significance of objects, and engage in instructional work as to what may be seen in and through them, can be regarded as a central activity for teaching and learning disciplinary reasoning and

action. Similar arguments have been made in relation to studies of several settings; analyses of interaction in school science (Lindwall & Lymer, 2008), photography (Phillabaum, 2005), and control room work, (Hindmarsh & Heath, 2000) testify to the recurrence and importance of “object focused discussions” (p. 553). In the light of this work, and in conjunction with the ethnomethodological perspective developed in the previous chapter, critique can be seen as an institutionalized form of *installation* (Macbeth, 2000), in which the disciplinary significance of student-produced objects is articulated for purposes of instruction. Thereby, it furnishes architectural education with a social technology “for the production of competence, fluency, and knowing action” (p.23).

CHAPTER 5

METHODS

In this chapter, the methodological approach of the thesis will be outlined and discussed, focusing on an account of practices of video recording, transcription, and analysis. The methodology of the study can be articulated by providing a contrast with dominant methods in the extant body of research on design review practice. A common way to proceed in the research on critique is to conduct interviews or administer questionnaires. As the details and subtleties of interview methodology are far beyond the scope of this discussion, only a particular feature of interviewing as practice will be noted. In an interview study of critique, participants will talk about critique, and share their recollections, their experiences—negative and positive—and, among other things, offer their analyses and evaluations of those experiences in relation to understandings of ideal practice. Thus, one significant feature of interviews is that they are built on participants' orientations towards critique as topic, as those orientations occur in conversations with the researcher. Something different happens when analytical attention is turned to the ways in which critique is actually done—how participants engage in the work that is glossed by the label. In particular, what participants orient to as topic and focus will differ. In examining the doing of critique, the analyst finds orientations to various *objects* (models, posters etc.), to *co-participants' actions*, and topicalizations of *architecture and architectural knowledge*. Of course, during a session one might find occasional (and occasioned) orientations to critique as such, formulations of it as part of some course of argumentation or inquiry (cf. Lindwall, et al., 2008, for an example). First and foremost, however, participants will be occupied

with orders of inquiry that preclude such explicit orientations. In addition, when such topicalizations occur, they do so as part of some larger sequence of activity, and are thereby subsumed under the focal concerns of instructional work and architectural reasoning. Thus, what it means to study critique becomes a very different thing in research based on participants' reports, compared to the approach adopted here. Rather than seek access to the use of critique as a category in the self-reflective discourse of a community of practice, this thesis examines, to paraphrase Garfinkel and Sacks (1970), the work for which critique is, within the setting, a proper gloss.

VIDEO

Exploring the work of critique is done in this study through analyses of video recordings. Lindwall (2008) provides a useful characterization of the varied approaches to video research in the learning sciences, and discerns three main categories in this field. First, there are studies engaging in *coding, counting, and correlating*, an approach that implies the use of "some kind of pre-established coding scheme, often involving a system of mutually exclusive and exhaustive categories" (p. 37). The recorded interactions are transformed into frequency distributions and other descriptions of the interrelations of *types* of actions performed by participants. Second, *looking through and beyond the interaction* involves taking recorded events as indices of things conceived as hidden from view. This may be the exercise of power, participants' mental models, understandings, attitudes, or similar phenomena, which become visible only through analysts' reasoned conjectures or through theoretically informed formal analysis. Third, *explicating seen but unnoticed details*, the approach taken here, implies turning one's analytical attention to the rich and visible texture of the work performed in the recorded interactions.

With the latter interest, audio-visual data materials can be said to provide unique affordances. Macbeth notes: "as a matter of faithfulness to the texture, temporal shape and material detail of the scenes they record, the video of filmic record provides remarkably uninterpreted renderings of the field" (1990, p. 191). This faithfulness makes possible "inferentially minimal analyses," which work exclusively with "the public witnessable detail of the

record” (p. 192). The uninterpreted character of video, it should be noted, is not an absolute but a relative one. That is, compared to other representations that may be created by researchers observing naturally occurring events, video is *relatively* well suited to the analytical concerns of explicating seen but unnoticed details of practice.

Researching the work of critique implies turning one’s attention to a range of constitutive practical actions whose details participants may be only cursorily aware of. The array of tacit social and interactional competences upon which social organization depends, and the complexity of practical action, make video a virtually indispensable resource for students of naturally occurring activities (Heath & Hindmarsh, 2002, p. 103). It is a resource for capturing and making available for repeated scrutiny “just those fleeting circumstances that our interpretations of action systematically rely upon, but which our accounts of action routinely ignore” (Suchman, 1987, p. 109). Thus, in addition to being oriented towards critique in a *different* way than in the midst of its performance, participants in interviews also lack technical access to many facets of the interactive work that may be captured and analyzed with video. When analyzing recorded interaction, McHoul and Watson notes, one recurrently finds that, “members’ activities [...] turn out to bear little comparison, in their fine organisation, with people’s *a priori*, typicalised conceptions—whether lay or sociological—of those activities” (1987, p. 299). Analyses of recorded interaction, then, have a potential for providing a radically different access to critique practice than is afforded by elicited recollections.

RECORDING

Recording was done by me and two other project members (Jonas Ivarsson and Oskar Lindwall). Apart from a commitment to documenting the interactional accomplishment of critique, the interests of the project were not set at the time of the recording. The intention was to avoid the use of preconceived formulations of what was worthy of inclusion. Our methodological mindset was akin to how Suchman describes her approach in *Plans and Situated Actions*:

The point of departure for the study was that we *lack* a description of the structure of situated action [...]. The consequence of this

commitment to examining the circumstances of action is that we need to begin with a record of events which is not pre-judged as to its analytic interest either in advance or in the making. (1987, p. 114)

In practice, however, the making of a record of the critique events required judgments as to what to include in the frame, when panning, zooming, etc., which were irremediably informed by a developing sense of analytical interest (cf. Jordan & Henderson, 1995). We made efforts to capture an as detailed view as possible of the actions of participants, including gestures as well as plans, models, and drawings, while at the same time not excluding the larger interactive organization or “participant frameworks” of the sessions (for further discussion of the practicalities surrounding this issue, see Goodwin, 1993). When available, two cameras were used, with one relatively stationary wide-angle view capturing as much as possible, and one used to zoom in on the details of gestures and the objects indicated, looked at, or otherwise oriented to by participants. In most of the recordings, however, only one camera was available. This implied a constant trade-off between capturing details and preserving interactive frameworks. For the most part the camera could be set to include both student and critic—normally positioned facing each other but slightly turned out towards the audience with the posters under scrutiny in the space between them—without losing sight of the objects looked at and talked about. It should be added at this point that the audience of peers and instructors other than those positioned in close proximity to the posters were at best peripherally visible in many recordings. This would—to give just one example of the ways in which production values shape what kinds of analyses may be subsequently performed with a given material (cf. Hall, 2000)—make a study of presenter-audience interaction difficult to carry out in a systematic way. Zoomed in shots of posters and models, either with the video camera or a separate still image camera were taken at the beginning of each session so that details of the proposals could be recovered in case they were not sufficiently visible in the video. In some cases, the students’ original PDFs could be obtained, which provided additional analytical resources; in Study 3, for instance, written material from the posters not readable in the recording is used as part of the analysis. At points, however, analytical work was hindered, either by a lack of sufficient details of the objects that were focal in the interactions, or by an exclusion from view of interactive

features such as gaze directions of participants and other facets of embodied conduct and comportment. The use of a high definition (HD) camera in roughly one third of the sessions proved useful as the higher resolution allowed parts of a relatively wide view to be enlarged so as to, when relevant, recover details in plans, models, and drawings. Learning productive ways of recording was, in line with Goodwin's observation, "an iterative progressive process" (1993, p. 194), in which camera work and microphone positioning were adjusted based on continual reviews and assessments of the material captured thus far.

This account of recording practices highlights the fact that recording is itself constituted by domain-specific forms of practical reasoning (cf. Livingston, 2008b). The data can also in a sense be said to be theory laden (Hall, 2000), in and through researchers' assumptions about the relevant boundaries of the activities of interest, and what aspects of them are to be taken into account. The resulting video recordings, then, are far from neutral or objective renderings. They are shaped by technologies, analytical interests and commitments, and by the many practical decisions made in and as the work of recording.

Recording naturally occurring events introduces the issue of how the presence of the camera and the researcher influences participants. Are participants adjusting in some way, say as a result of discomfort with being recorded; will their normal manners of proceeding change towards enacting officially held ideas of an ideal critique; or will they perhaps alter their way of talking to a more formal style than usual (cf. Speer & Hutchby, 2003)? These are of course difficult questions to answer in general. Participants who were asked about this in the context of informal conversations around the recording stated that they had paid very little attention to the presence of cameras and researchers. One critic spontaneously reported astonishment at how little he had noted the camera; as the session was underway, he reportedly forgot completely about being recorded. According to Jordan and Henderson, "experience shows that people habituate to the camera surprisingly quickly [...] In the long run, and in particular as people become involved in tasks other than worrying about the camera, camera effects visibly wear off" (1995, p. 56).

In line with this, our impression was that engaging in the critique event—either as student or critic—seemed to require a focused orienta-

tion towards the business at hand which precluded any sustained efforts to adjust to the camera. As to discomfort or nervousness on the part of students, it is likely that our gaze, as educational researchers, was experienced as less problematic than that of instructors, invited critics, and peers. Out of 144 sessions scheduled for recording, only one was canceled when the presenting student requested this. Of course, it is unlikely that our presence did not influence the recorded events at all—just how, however, is difficult to assess. Speer and Hutchby (2003) suggest that a resource for assessing camera effects may be to apply a video-analytical perspective on the issue, examining a set of recordings for the ways in which participants visibly orient to the fact of them being recorded. They argue that a sustained, ever-present, influence of recording devices cannot be assumed, but should rather be demonstrated according to the same policies that guide the analytical work in general, i.e. as demonstrably oriented towards by participants. While such a study has not been carried out in a systematic way in this thesis, a cursory review of the materials suggest that very few apparent disturbances were caught on tape, apart from the occasional quick glances and laughter as the external microphone was being re-positioned behind the poster screen at the beginning of each new session.

ANALYSIS

Analysis in a sense started during recording. This work was in part collaborative. Notes of things that struck us as interesting were collated and shared during intervals and in between recording sessions. For instance, different experiences with recording in critiques where digital slide-show technologies were used, as compared to traditional poster-based setups, provided the starting point for discussions that were later systematized in the analyses reported in Study 4. The relatively active mode of filming described above also required a concentrated listening to and looking at what participants were saying and doing, something that contributed to making the data collection itself functional as a first step in the analytical work. The original tapes were digitalized—this process in itself providing another opportunity to watch the recordings and re-acquaint oneself with the material. Thematic structures for possible analyses, tentative groupings of recordings according to some initially discerned commonality or

difference, formulations of interesting things, arrays of written notes with references to particular episodes or sessions—assemblages of inscriptions and formulations perhaps best described as “ideas”—emerged gradually through watching the video, transcribing parts for use in data sessions and similar events, and in such seemingly peripheral activities as the writing of various short summaries of the dissertation project intended for institutional web-pages and similar fora. Conversations with friends and colleagues was another medium through which analysis took shape as the gradual solidification, re-assembly, and structuring of talk and inscription—images, texts, tables, transcripts—into things which more and more resembled academic papers.

The choice of episodes to focus on in the analyses was made according to slightly different logics in the individual studies. In Study 1, an early categorization or ordering of observed phenomena—a set of different ways of orienting towards the graphical surface of student presentations—served as the structural basis of the text; episodes were included that were deemed to illustrate these orientations in a clear way. In Study 2, various circumstances are reviewed in which participants through talk topicalize the relation between formulations of intentions and designed objects, with a set of perspicuous examples analyzed in closer detail. The logic of selection is thus to find a collection of instances of a class of actions, defined on a *discursive* basis, on the level of talk. Study 3 focuses on one episode, the analysis of which is used as way of respecifying notions of intertextuality. Intertextual work is a theme that runs through the whole data material in the ways in which students and critics appropriate well-known architects and buildings in their presentations and discussions, and so a collection could conceivably have been assembled and analyzed. For this topic, however, a more detailed, in-depth analysis of the treatment by students and critics of one single issue worked better than a collection of illustrative instances. Unpacking the disciplinary knowledge indexed by the references made to a small set of architects and buildings required extensive space in itself, and so including more examples would have involved cutting down the detail in the analyses. Study 4 contrasts material set-ups used in the critiques, comparing digital slide-show technologies with poster-based reviews, and combinations of the two. The different conditions created by the technologies are described and discussed with the aim of providing

a sense of how critique practice is influenced by changes in mediating technologies. Three main dimensions along which the set-ups differ are presented, with short excerpts from several different sessions being used to explicate the analyses; the basis for selection in Study 4 was the suitability of an episode to display critical features of the use of technologies. The identification and understanding of these critical differences were based as much on an emerging ethnographic sense of recurring features of the recorded practices as on the bottom-up analysis of individual fragments.

The very richness of recordings of interaction makes it plainly visible, when textual accounts are placed alongside recordings for comparison, that the renditions finally ending up in published reports are at best partial and perspectival. The aim is that they should strive to do justice to the original recorded events, and the concerns and orientations of participants. As McHoul and Watson phrase the matter:

Any re-writing of members' ways—lay or professional—must always be relegated to a state of approximation. Explanation—in the sense of definitive analysis—is unavailable here. Our accounts cannot exactly and utterly stand in for the 'nature' of things, including the 'nature' of other accounts. Adequacy, in social scientific as well as everyday accounting, is essentially an adequacy-for-practical-purposes. (1987, p. 300)

TRANSCRIPTION

This last section of the chapter is a short note on issues concerning the transformation of video-recorded events into textual and graphical displays suitable for the printed page. Initial transcription was done using the software InqScribe. This software had the advantage of preserving the connection with the video. Several authors have noted that analyses of talk-in-interaction run the risk of losing track of the original events once transcripts are produced (e.g. Hutchby & Wooffitt, 1998; Jordan & Henderson, 1995; Ochs, 1979; vom Lehn & Heath, 2007). Software that retains a close connection between video and transcript is useful for counteracting this tendency of what can be referred to as analytical drift. Transcriptions of episodes that were considered for inclusion in papers were reworked with more attention paid to details such as pause lengths, gestures and embodied conduct, with transcription conventions adapted from the standard con-

versation analytic notation. These detailed renderings often implied seeing new things in the episodes, and reconsidering initial impressions of what was happening in them. The construction of images to show embodied conduct has been an important part of the analytical work, and was instrumental in allowing new facets of the transcribed interactions to become apparent. Rather than only using dumps from the video, images were “fabricated” for greater clarity and readability. Drawings were made showing the shape and outline of gestures. The studies display a number of different ways of doing this, and can be seen as different attempts or experiments to find suitable ways of presenting the recorded events for the analytical purposes of the individual papers. Just how to proceed in this regard is far from self-evident. No standardized mode of representation exists to date, and it is doubtful that such standards are even desirable, given the highly domain-specific nature of embodied conduct, and the varied analytical concerns of researchers. As noted by Ivarsson, “it is not without difficulty that the temporal *and* spatial arrangement of bodies, conduct and other events are transformed into the fundamentally spatial (non-temporal) arrangement better known as ‘a page’” (2010, p. 179). The ways in which embodied conduct is represented in the final transcripts vary between and within the studies, depending on what point, issue, or phenomenon each analysis attempts to deal with. An approach to transcription and image work, which has served as a source of inspiration, can be found in Goodwin (2000).

CHAPTER 6

SUMMARY OF THE STUDIES

DEMONSTRATING PROFESSIONAL VISION

This study provides an initial account of how architectural competences are made visible in the sessions. The focus of the analyses lies on *visual* aspects of architectural competence, reflecting both a theoretical interest in seeing as social practice and the currency of vision in the discourse of the educational setting itself. In the program description for the school of architecture at which the study was conducted, prospective students are informed, “an important part of your development is to learn to see with architect eyes.” This description echoes currently influential approaches to the analysis of professional practice, where the idea of an education of perception has been explored through the analytical notion of professional vision (Goodwin, 1994). Two interrelated observations can be made on the basis of this body of work: first, that professional ways of seeing are inherently bound up with, or attuned to, the specific tools and techniques that provide the profession with its enabling “material and cognitive infrastructure” (p. 626); second, and consequently, objects—graphical displays, representations, texts, and tools—whose use and proper perception are inaccessible to actors outside the discipline abound in architectural practice. In professional practice, however, the architect may be required to interact with the “discipline-specific forms of perception and action” (Hall, et al., 2002, p. 204) of non-architects. This tension is addressed in the study as an instructional matter.

The study examines how critics enact a set of visual practices through which architectural qualities of proposed buildings become available for

competent scrutiny. Particularly prominent among these practices is the seamless fusion of gestural elaborations of architecture's designed objects with the envisaged spaces of a hypothetically perceived built environment. The main theme organizing the analyses is a set of discernibly different ways in which the graphical surface of the presentation is treated. First, as noted, the presentation is oriented towards as a representation that allows participants to talk about such entities as buildings, spaces, functions, and construction. Secondly, things may be noted as *lacking* in the presentation, making critics unsure of how to interpret the intended environment. Such problems are also topicalized as an issue of the design process; if the critic cannot see the intended structure clearly, then, probably, the student were similarly deprived of the relevant resources for judging whether the solution works. Third, critics assess the communicative and rhetorical organization of the presentation. The presentation can thus be *seen through* to afford assessment of a proposed built environment, but it is also *looked at* as a designed object in itself (cf. Suchman, 2000, p. 11). Often, critics alternate between talking about proposed buildings and assessing the designed representations of those buildings, and how well they show the spaces they represent. Thereby, qualities of the buildings are in some sense construed as simultaneously visible and invisible: visible to the critic, but invisible to other potential viewers.

This configuring of perception as an oriented-to feature of the critique points to an interesting complexity in the status of the architectural presentation; it highlights the division of labor in which the architect is positioned, and the competent management of possible viewers' differing perceptions of the presentation. Critique practice thus subjects students' work to a variety of substantially different visual practices. The student's socialization into a specialized field of practice, in which objects are designed according to professional rationalities that go beyond what is readily visible or accessible to the non-architect, is thereby made accountable for some of the communicative demands of professional practice.

TOPICALIZING INTENTIONS, INSTRUCTING ARCHITECTURE

As can be seen in Study 1, instruction and assessment in critique are overwhelmingly done through professional readings of the material products of students' work. This study focuses on a particularly interesting variant of this practice: assessments of what may provisionally be called *the accomplishment of stated intentions*. For instructors, this quality is not directly discernible in the designed object as such. Rather, it is premised on the relation between the object and particular forms of discursive formulations, typically occurring in the students' presentations of their projects. In one central episode, a student presents his design of an atelier as an attempt at achieving a "heavy" building. In giving feedback on the project, one instructor says: "If it's *weight* you wanted to achieve you have not succeeded at all." Further elaboration of this comment then ensues, and the implications of the assessment are detailed. What is of interest here is the fact that the object of criticism is the *relation* between the student's stated intentions and the qualities that are visible in the presented design, rather than the qualities of the designed physical object taken in isolation.

Examining this and similar episodes, the study explores the ways in which students and instructors topicalize the relation between designed artifacts and expressed intentions—the ideas, values, concepts, or thoughts that are formulated in rationalizations of students' designs. One finding is that exposed mismatches between stated intention and design provide a focus for instructional sequences concerned with the ways in which students are to coordinate their understandings of concepts with relevant communities of practice. These sequences involve professional articulations of how certain types of formal elements are conventionally seen—certain kinds of roofs as communicating lightness, certain combinations of material and structure as signaling structural transparency.

A conclusion drawn from this is that design and intention are treated as an inseparable pair. One could say that the formulated intention and the designed object are intimately and irremediably tied to each other. The project as a whole involves a material-persistent aspect, and a linguistic-transient one. None of these exists independently, and the meaning of each is co-constituted by a reflexive relation to the other. In sum, a proposal as a disciplinary object is oriented towards not as a stand-alone material artifact,

but as a hybrid between the physical materials of models and drawings, and the conceptual formulations that those materials are treated as realizations of.

Topicalizations of intentions often become ways of talking about and instructing design processes. Architectural reasoning is tied to the iterative nature of design: the designer must continually see and assess the ways in which design decisions—for example additions or alterations of parts—influence the perception of the whole, but without the luxury of having the final product at hand. There is a practical problem of *gestalt perception* in design, to which particular forms of seeing and reasoning are oriented. The architect is in effect engaged in the creation of gestalts, rather than merely their passive perception. The work of critique, in particular where the relation between formulations of intentions and the physical designs are topicalized, can be seen as instructing these practices of gestalt perception-and-design; the critics highlight, for instance, where certain details, such as bricks and pillars or the color of facades, disrupt the perception of the intended gestalt, and give advice to students about some practical ways of ensuring reliable continual assessment of how the design will be seen.

INTERTEXTUALITY AND INTERPRETATION IN THE EDUCATION OF ARCHITECTS

Architecture as a discipline is deeply rooted in history—both the history of architecture itself and the larger context of unfolding sociopolitical events. Architectural proposals are consistently seen in terms of the discipline's understandings of extant schools, eras, traditions, events, and previous works. Phrased differently, an architectural proposal is in a fundamental sense an *intertextually* oriented and situated object.

This study examines the ways in which critique may constitute an opportunity to raise questions concerning intertextual connections and socio-historical embeddedness: are the students able to place their particular solutions within a disciplinary geography of predecessors, contemporaries, and traditions? A stock of knowledge of existing works of architecture—designs having currency in architectural discourse, as masterpieces or failures, as typical of an era, or as otherwise iconic—is actualized and made relevant both in students' presentations and in the critics' responses. While

lectures and readings can present students with architectural history in recounted form, achieving the relevancy of the historical situatedness of a student's design requires the active use of disciplinary perception, interpretation, and articulation.

This study provides an analysis of one episode from a design review. In the episode, an instructor discusses a student project that has incorporated the design language of Günther Domenig's addition to Albert Speer's Congress Hall in Nürnberg. Referring to Domenig, the students present a design concept, in which the redesign and addition to the parish house will take the form of "cutting in and adding." They claim that they thereby create an "exciting" expression, whilst simultaneously being, as one of them formulates it, "respectful to the old building." The question raised by the critic is whether this is a relevant understanding of what they have achieved. The instructor points out that Domenig's design was explicitly formulated as an attempt at disrupting and deconstructing the original structure, as well the ideologies connected with it. She then argues that this metaphorical baggage interferes with the perception of the students' project and with the qualities of their design. In doing this, she raises several central issues of interpretation, reception, intention, and historicity.

In the analyses, issues of intertextuality and interpretation are shown as a participant's concern and as a matter of instruction. The reflexive orientation to interpretation and intertextual connections that is evident in the analyzed interactions is related in an interesting way to the professional practice of intertextual analysis. The participants orient to the presence of lay and professional analysts out there as a practical concern, relevant for the ways in which the critics are to assess student designs and, by implication, for how design is to be performed so as to take into account interpretative practice. It is treated as a matter of fact that people will interpret and analyze one's work. This, in turn, necessitates a concern with "what signals you send out." This points to the conclusion that "interpretation" is included in the realm of empirical circumstances and considerations for which the work of design is accountable. Interpretation is in a sense placed among factors such as structural integrity, aesthetics, and coherence, as part of the problem space in which architectural work navigates. Design anticipates professional interpretation, and is thus prospectively oriented towards the retrospective ascription of intertextual relations, and the meanings they

suggest. This requires the designer to be reflexively aware of the politically charged meanings communicated by particular expressions, constructions and design solutions.

CONTRASTING THE USE OF TOOLS FOR PRESENTATION AND CRITIQUE

Architects design built environments, but the products of their work are not in the first instance buildings. Rather, they produce proposals, which need to be communicated and then realized through the coordinated work practices of numerous other actors. This implies that presentations of proposals are pivotal to the work that eventually culminates in a built environment. Presentations have strong persuasive and rhetorical elements; in order to convince an audience that a particular design proposal is the best solution, the merits of the project are highlighted. Presentation practice also has an instructive character; the communication of a proposal to an audience of different professionals needs to be instrumental in providing a shared understanding of the project, sufficient for subsequent collaborative work. Technologies mediating presentations in architecture must, thus, be geared not only toward the rhetoric of presentation, but also to the requirements of ensuing discussion and assessment.

This study explores how presentations and discussions of designs may be seen as contingent on the specific tools employed in the critique event. At the time of the study, three different setups were utilized at the studied school: traditional posters, digital slide-show technologies, and combinations of the two. This range of different setups provides a set of contrasts that makes visible the role of technologies in shaping the ways in which the reviews are conducted. The analysis is structured in three themes. First, the sequential organization of digital presentations is examined in relation to the spatial structure of poster-based presentations. Second, the different ways in which shared attention is established in digital, paper-based, and hybrid presentation practices are analyzed. Third, part-whole relations are addressed—how details in presented materials are put in relation to the overarching project or the presentation as a whole. Taken together, the analyses suggest that the detailed organization of the design review is transformed in subtle yet consequential ways through the introduction of digital slide-

show technologies. These transformations might be consequential not only locally, for the design review itself, but also for the instructive work that is accomplished through this practice.

The study is concluded with a discussion of some implications for design. It is argued that an increased awareness of how communicative phenomena are co-determined by the setups might be key for the proper adaptation of presentation technologies to the particular demands of critique and assessment in design education. While the presentation does not need to take into account the visibility and accessibility of materials after they have been delivered, the critique phase of the design review works on the presented object in a very different way. Aspects of the design are topicalized in opportunistic ways not immediately related to the logic of the authored presentation, and different parts may, therefore, be juxtaposed in order to articulate structural features of the design or the coherence of the proposal—phenomena not necessarily visible or accessible in any individual slide. As different presentation setups create different affordances for unpacking and elaborating the materials scrutinized during review, the ways in which architectural knowledge is exercised, communicated, taught, and learned in these situations are transformed along with technological change.

CHAPTER 7

DISCUSSION

In this thesis, an ethnomethodological analytical approach is applied to the study of instructional work within architecture. Of the many different and intersecting activities making up the educational program, the analyses focus on critique. Although the design review is enduring, widely in use, and much debated, very few studies have examined and made visible how it is done, in detail, with attention to the real-time verbal and embodied actions that constitute its achievement by participants. It may be possible to come to some form of understanding of architectural education by examining formal learning goals, detailing the content of the courses and practices making up the educational program, and eliciting accounts and recollections from participants. The practices through which this content is realized, however, and through which architectural knowledge is displayed and put to work, require forms of research that allow the detailed analysis of practice. The research reported here is an attempt to open up the work of critique for such analytic scrutiny.

The individual studies explore phenomena pertaining to *vision*, *intention*, *intertextuality*, and *materiality*. The first three of these glosses denote features and varieties of architectural reasoning made visible as matters of instruction in the work of students and instructors. The fourth one concerns the technological and spatial forms in which critique is realized and which shape the reasoning enacted within it. This constellation of topics in no way provides an exhaustive account of the instructional practices studied. In a situation where the production and presentation of student proposals meet professional orders of practical reasoning and judgment, the opportunities are numerous for thematizing diverse facets of architectural practice:

participants engage in instructional work concerning aesthetics, construction, economic considerations, city planning, demographics, design process, argumentation and many other design domains. Each critique session provides an open range of possible topics and courses of inquiry. A defining characteristic of critique is that the relevant context of a discussion easily can be shifted during the course of a single question, comment, or assessment (cf. Jurow, et al., 2008)—say from aesthetical aspects of the design, to functionality, construction or some other issue. These aspects, moreover, do not occur as decontextualized subjects, but are rather made relevant in relation to the specific qualities or problems that are seeable in the individual projects. Although introducing an element of uncertainty, which may be stressful for students, the openness of critique could also be considered one of its defining strengths; critique is a situation which prepares students for situations of presentation and argument where the ranges of possible questions and issues that may be raised cannot be defined, delimited, or predicted beforehand. That is, the openness of the design review is not only connected to its function as an educational activity, but is a direct reflection of the complexity of the profession.

When looking at recordings of critique it is often difficult to single out what issue a given sequence is dealing with. Although a question may be raised about some particular aspect of a design, multiple interrelated architectural problems tend to be actualized in the course of its treatment. Thus, any highlighting of, for instance, visual or linguistic features of a design works in the setting as a provisional point of entry to orders of practical reasoning that go beyond a concern with narrowly defined topics. Topicalizations of student intentions, for instance, provide perspicuous settings for explorations, by participants, of eminently practical, material, and perceptual issues. The instructional sequences touched off by such references come to encompass phenomena ranging from gestalt perception to issues of design process and intersubjective architectural grammars. In Study 2, a student presents his design for an atelier building, stressing his intention to impart “heavy” qualities to the building. In the critique, a number of issues is raised. What kinds of structures, forms, and materials are conventionally seen as heavy? What gives the impression of lightness? What is the significance of a failure to realize a stated intention? What measures can be taken to avoid such failures? These are questions dealt with during a stretch of

few minutes of interaction, starting in a noted discrepancy between what the student says, and what is seeable in the presented design in the eyes of the accomplished architect.

In Study 3, participants topicalize a number of issues clustered around the practice of *referring* in architecture. The ways in which a group of students align their design with well-known traditions and architects, and incorporate forms and design approaches into their project, are scrutinized and discussed by critics and students. It is highlighted that the political charge of the cited buildings, and the established meaning of those buildings within the architectural discipline, come to influence the ways in which the student project may be perceived. This intertextual theme however, which would seem to pertain principally to the level of architectural discourse, is no less gestural, visual, and material in the ways in which its relevance is achieved than is the problem of placing and representing the infrastructure of ventilation systems (see Study 4).

This character of the work of critique—the ways in which topics and themes raised for discussion are intertwined with each other, and inseparable from the verbal and embodied conduct of participants—also has consequences for the analyst, who attempts to explicate the interactions, and the architectural reasoning exhibited in them. Regardless of what topic is configured as the focus of an analysis, the latter will irremediably have to deal with the complexity of the public fields of action in which participants operate. For instance, when critique is viewed from the perspective of vision, as in Study 1, it is clear that such an entry point in no way affords a demarcation of narrowly “perceptual” objects of study. The disciplined perception of participants is embodied, material, and relies on a range of discursive resources; it is thus recalcitrant to any “optical” treatment (cf. Lynch, 1991, p. 59). As a student of practical action, one must irremediably come to terms with “the interrelationships between skill, reasoning, perception and embodied action” (Livingston, 2008b, p. 9).

INSTRUCTION AND INSCRIPTION

In the historical background sketched in the introduction, it is argued that the gradual distancing of architectural design from direct involvement in the concerns of the building site implied an increased focus on represen-

tational practice. Indeed, in the work of critique, one finds an unceasing orientation to plans, models, drawings, and other renderings constituting the architectural proposal. Thus, critique is a setting in which this particular sociohistorically developed character of the architectural profession is highlighted, in and as a set of practices for presentation and assessment of assemblages of graphical and three-dimensional renderings.

Looking at the analyzed materials from this representational vantage point, a number of observations can be made in relation to the practices through which students of architecture are instructed. First, one may note how the *proposal* emerges as the proximal accountable object of architectural critique, rather than built environments as such. That is, although a professional architect may at some point be made accountable for the qualities of the environments resulting from realizing his or her designs, none of these qualities are directly accessible at the point in time where the most consequential judgments about the quality of the design are made. And for students learning to design, the former kind of feedback is never available; their training is situated within a space of discourse, representation, and inscription.

This could be contrasted with other creative disciplines, where responsive practices can be directed at instances of finished disciplinary objects, without their representational function becoming similarly relevant. In criticism of poetry, for instance, “the intentional fallacy” may be rejected in favor of an objectivist analysis (Wimsatt & Beardsley, 1946/1992). For an art instructor it is possible to respond to students’ paintings or sculptures as self-contained objects. And prints produced in the education of photographers can be critiqued without a bipartition of assessments directed either at a proximal or a distal artifact (Phillabaum, 2005). In architecture, the physical object is treated as a rendering of something else. Thus, assessment, instruction, and professional vision alternate between scrutinizing this something else, an envisaged built environment assessed for its qualities as an inhabited space, and the designed object constituting the presentation. To borrow a formulation from Suchman’s analysis of engineering practice, the critic “moves fluidly between pictures and things and across time, as the artifacts and objects of her work are read through each other to achieve a rendition that aligns what is there now with its desired transformation” (2000, p. 12).

As a proposal, the accountable object in architectural design education is irremediably inseparable from the ways in which it is formulated in language. Proposing something is a communicative act, and so the presentation event requires that the architectural rationality of the design is made evident in the fit between seeable and palpable designed artifacts on the one hand, and certain articulated values on the other. In presenting, the student makes available the ways in which the design achieves its goals, in and as the production of orderly features of verbal and graphical texts. Motives, intentions, and concepts become relevant features of instructional work in the situated practices constituting the design review. The proposal is thus not treated as a distinct stand-alone thing. The ways in which participants analyze it is not objectivist. Instead, inquiries are directed at a reasoned object, with its displayed and ascribed reasons and reasoning treated as irreducibly co-constitutive of its significance and quality.

The representational and persuasive character of architectural reasoning can further be seen in the ways in which the relevance of different categories of envisaged viewers emerges as a central concern for the participants in critique. Envisaged interpretation of the proposed buildings, as well as of the graphical renderings of those buildings, becomes an integral part of design review practice. In Study 3, the differential modes of access that categories of viewers may have to the inferences inherent in intertextual references are highlighted as a thoroughly practical matter; such seemingly peripheral factors, and the skilled treatment of them, may be as consequential for the success of the project as the integrity and strength of the would-be building.

Study 4 demonstrates yet another consequence of this deeply representational character of architectural design, as it surfaces in the instructional practice of critique. The technologies and setups which are used to mediate the presentation and discussion of design proposals come to shape the critique in evident ways. Gestural registers of action, for instance, and the ways in which they are implicated in the delivery of criticism, are employed differently in the examination of a digital projection than they are when conventional posters and models are used. The material form of the critique has consequences for the forms of reasoning enacted and exhibited, and thus for the instructional work accomplished.

THE INSTRUCTIONAL WORK OF CRITIQUE

As Shulman (2005) observes, educational programs directed at the professions are characterized by their distinctive signature pedagogies. Investigation of these pedagogies may allow a researcher access to focal concerns and practices of academic disciplines and their professional contexts of application. In architectural education, the entire curriculum is organized around the production, discussion, and assessment of objects. Assessment practices feature both as an ongoing element of the processual work of producing designs, and—with the critiques—as a final “verdict” on the project as a whole. One consequence of this organization is that students must begin straight away to do the things they are supposed to learn how to do. This characteristic has been described by Schön (1987) as a *paradox*, a version of the general paradox of teaching and learning formulated by Plato in the dialogue *Meno*. Students are being charged with the task of designing before knowing what design is. How are they, then, to begin their search for relevant ways of designing, and how are they to know when they have found them? Students’ learning “bears a double burden: they must learn both to execute design performances and to recognize their competent execution” (p. 88–89).

In a sense, problems of this kind are managed as a practical matter in any educational setting. Rather than an insoluble paradox, then, the phenomenon could be considered a “normal, natural trouble” (Garfinkel, 1967, p. 191) of practices of learning-and-instruction. Although a natural trouble of this kind is essentially unavoidable—meaning, that anyone who attempts a remedy “will quickly encounter interesting properties of these troubles” (*ibid.*)—solutions for all practical purposes are in no way intractable. For instance, as a practical affair of classroom teaching, *Meno*’s paradox is managed by building tasks and activities so that their accomplishment is grounded in everyday interactional competences—that is, in things students can already do. These are competences for recognizing, for example, the tendentiousness of a question, and for finding what answers it may call for in the material and social arrangements to which it is fitted (Macbeth, 2000). In architectural education, a similar solution is at work:

The architectural studio rests on an implicit response to the paradox and predicament of learning to design: the student must be-

gin to design before she knows what she is doing, so that the studio master's demonstrations and descriptions can take on meanings useful to her further designing. (Schön, 1987, p. 99)

Iterative cycles of production and response are key to this solution; instructions for and descriptions of design, that initially may only be vaguely grasped, gradually acquire a more definite sense when they can be juxtaposed with the objects one produces, and seen in terms of the contingencies of production. The standardized form of the material objects that students produce provides a structure that can be picked up and at least approximated even with very little training in the discipline. These structured actions, made visible and crystallized in objects, can then be seen and assessed by more experienced practitioners. They form the concrete materials that make *discipline-specific response* possible. To take an example from Study 1, one critic notes a discrepancy between what is visible in a section, and what appears in the plan. On the one hand, one could say that it is a simple beginners mistake not to include all relevant details in the section, and that such principles may most easily be communicated through texts or lectures. The precise highlighting of such details, on the other hand, and the detailing of their consequences for the perception of the particular design at hand, would have been difficult to achieve without a practice premised on a kind of premature performance. A performance, moreover, whose products are subjected to maturely professional assessment practices. As Säljö describes the particular instructional situation of the critique:

By talking about, and in some sense through, a concrete object, the professional experiences and perspectives of the mentor are anchored in a shared reality. Judgements may be passed on and comments given, and these derive their meaning from the presence of a piece of work that the student is accountable for in terms of its architectural qualities. This, to some extent, decentres the student and what is in his or her head, and focuses the artefact as a product of deliberation and of exercising of judgement that can be discussed on the basis of architecturally relevant distinctions. (2009, p. 320)

As we have seen, criticism implies exhibiting architectural judgment, instrumental for what Dewey thought of as a processual “reëducation of perception.” In the interactive organization of apprenticeship represented by the design review, assessments, corrections and feedback serve to simulta-

neously shape embodied practices, instruct the usage of categorical distinctions, and inform perceptual inquiries constituted through complexes of inscriptions and actions (cf. Goodwin, 1994). Although such instructional work is delivered in the critique as a form of assessment, it simultaneously exhibits orders of judgment and practical reasoning operative within the process of design itself. It is precisely judgments of the qualities of the designed object as-of-now, be it with regard to aesthetic values, functionality, structural integrity, or success in realizing an envisaged conceptual gestalt, which informs the revisions made at each subsequent iteration. Assessment as exercised in the critique is thus not a form of judgment external to the competences that go into the production of the objects assessed. Rather, the practical reasoning exhibited in critical assessment lies at the very core of skilled design work. Phrased otherwise, critique is not only an educational practice, but also, and centrally, an architectural one.

In the ways in which diverse disciplinary phenomena and their modes of competent treatment are made visible, critique can be said to serve, to paraphrase Livingston, as a tangible, concrete, material interface, through which reasoning in the architectural domain is “cultivated, exhibited, and taught” (2008a, p. 860). The design review is, for analysts and participants alike, a *perspicuous setting*, or a *material disclosure*, in and through which participants may “find, examine, elucidate, learn of, show, and teach” (Garfinkel & Wieder, 1992, p. 184) certain orders of architectural reasoning. It is in these ways one may understand the instructional work of critique. Critique is a site where architectural proposals are treated for the purposes of instruction as provisional and improvable, not yet quite set, and where their significances are detailed in exhibitions of architectural reasoning and judgment. Such exhibiting may involve identifying and elaborating on problems or qualities, or articulating values that are architecturally seeable in the envisaged buildings and their graphical representations. These interpretations may be juxtaposed with the expressed intentions of students, as these appear in verbal presentations or in textual accounts; their interrelations are inspected and discrepancies are noted and discussed.

Critique features as one component of an educational program consisting of many interrelated and intersecting practices, all playing some part in the reproduction of architectural knowledge, and the shaping of architects to-be. The function of critique within such processes can be said

to centre on the juxtaposition of student-produced objects with professional competences for seeing, articulating, assessing, and contextualizing these objects. In organizing the educational program around cycles of production and critique, architecture is provided with a powerful means through which design competences, and the assessment practices that lie at their core, can be made massively present within, and constitutive of, the developmental processes through which students, over time, acquire the intellectual, aesthetic, and discursive repertoires necessary for competent architectural work.

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Part Two

THE STUDIES
