International Handbook of Research in Professional and Practice-based Learning

The International Handbook of Research in Professional and Practice-based Learning discusses what constitutes professionalism, examines the concepts and practices of professional and practice-based learning, including associated research traditions and educational provisions. It also explores professional learning in institutions of higher and vocational education as well as the practice settings where professionals work and learn, focusing on both initial and ongoing development and how that learning is assessed.

The Handbook features research from expert contributors in education, studies of the professions, and accounts of research methodologies from a range of informing disciplines. It is organized in two parts. The first part sets out conceptions of professionalism at work, how professions, work and learning can be understood, and examines the kinds of institutional practices organized for developing occupational capacities. The second part focuses on procedural issues associated with learning for and through professional practice, and how assessment of professional capacities might progress.

The key premise of this Handbook is that during both initial and ongoing professional development, individual learning processes are influenced and shaped through their professional environment and practices. Moreover, in turn, the practice and processes of learning through practice are shaped by their development, all of which are required to be understood through a range of research orientations, methods and findings.

This Handbook will appeal to academics working in fields of professional practice, including those who are concerned about developing these capacities in their students. In addition, students and research students will also find this Handbook a key reference resource to the field.
Acknowledgements

We acknowledge the contributions of following persons to the development of this book project whose efforts directly contributed to the identification of contributors and the quality of the accepted chapters.

Members of Editorial Board

Frank Achtenhagen
David Berliner
Anneli Eteläpelto
Laureen Filliatraz
Bärbel Fürstenau
Silvia Gherardi
David Gijbels
Enzo Lehni
Sten Ludvigsen
Monika Nerland
P. Robert-Jan Simons

Reviewers of Contributions

Frank Achtenhagen
James Avis
David Berliner
Chris Bigum
Sanjini Choy
Georgina Davis
Anneli Eteläpelto
Acknowledgements

Laurent Filliettaz
Silvia Gherardi
Paul Gibbs
David Gijbels
Michael Henninger
Helen Josserger
Eva Kynähti
Erno Lehtinen
Sten Ludvigsen
Monika Nerland
Jan Stroosch
Dineke Tigelaar

We would also like to thank the following three staff members of Springer Education, for their support, advice and contributions to the development and publication of this Handbook.

Bernadette Ohmier
Judy Pieren
Marianna Pascale

Contents

Volume I

Part I Professions and Professional Practice

1 Professionalism, Profession and Professional Conduct: Towards a Basic Logical and Ethical Geography ........................................ 5
   David Carr

2 The Concept of Professionalism: Professional Work,
   Professional Practice and Learning ........................................ 29
   Julia Evetts

3 Moral Aspects of Professions and Professional Practice .......... 57
   Gerhard Minnemann

4 Professional Work and Knowledge ........................................ 79
   Lina Markuskaite and Peter Goodyear

5 Conceptions of Professional Competence ................................. 107
   Martin Mulder

6 Becoming a Practitioner: Professional Learning
   as a Social Practice ..................................................... 139
   Silvia Gherardi and Manuela Perrotta

7 Productive Systems of Professional Formation ....................... 163
   Jim Hordern

Part II Research Paradigms

8 Understanding Learning for the Professions: How Theories
   of Learning Explain Coping with Rapid Change ..................... 199
   Erno Lehtinen, Kai Hakkarainen, and Tuire Palonen
<table>
<thead>
<tr>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 Understanding Learning for Work: Contributions from Discourse and Interaction Analysis</td>
</tr>
<tr>
<td>Laurent Filleaert</td>
</tr>
<tr>
<td>10 Research Paradigms of Practice, Work and Learning</td>
</tr>
<tr>
<td>Paul Gibbs</td>
</tr>
<tr>
<td>11 A Phenomenological Perspective on Researching Work and Learning</td>
</tr>
<tr>
<td>Gloria Dall’Alba and Jürgen Sandberg</td>
</tr>
<tr>
<td>12 The Neuronal Base of Perceptual Learning and Skill Acquisition</td>
</tr>
<tr>
<td>Mark W. Greenlee</td>
</tr>
<tr>
<td>13 Hierarchical Linear Models for Research on Professional Learning: Relevance and Implications</td>
</tr>
<tr>
<td>Eva Kyndt and Patrick Onghena</td>
</tr>
<tr>
<td>14 The Anthropological Paradigm of Practice-Based Learning</td>
</tr>
<tr>
<td>Catherine Hasse</td>
</tr>
<tr>
<td>Part III Educational Institutions and Systems</td>
</tr>
<tr>
<td>15 Professional Education Between School and Practice Settings: The German Dual System as an Example</td>
</tr>
<tr>
<td>Peter F.E. Sloane</td>
</tr>
<tr>
<td>16 The Dual System of Vocational Education and Training in Germany—What Can Be Learnt About Education for (Other) Professions</td>
</tr>
<tr>
<td>Barbara Fürstenau, Matthias Plötz, and Philipp Gonon</td>
</tr>
<tr>
<td>17 From University to Professional Practice: Students as Journeymen Between Cultures of Education and Work</td>
</tr>
<tr>
<td>Madeleine Abraham Dahlgren, Tone Drydal Søbrekke, Brita Karsten, and Sofia Nystöm</td>
</tr>
<tr>
<td>18 Integrating Professional Learning Experiences Across University and Practice Settings</td>
</tr>
<tr>
<td>Stephen Billett and Sarojini Choy</td>
</tr>
<tr>
<td>19 Transitions to Working Life: Securing Professional Competence</td>
</tr>
<tr>
<td>Päivi Tynjälä and Jennifer M. Newton</td>
</tr>
<tr>
<td>20 Interprofessional Education in the Health Workplace</td>
</tr>
<tr>
<td>Elizabeth Katherine Molloy, Louise Greenstock, Patrick Fiddes, Carisons Fraser, and Peter Brooks</td>
</tr>
<tr>
<td>21 Medical Education</td>
</tr>
<tr>
<td>Tim Dornan and Pim W. Toumiens</td>
</tr>
<tr>
<td>22 A Phenomenographic Way of Seeing and Developing Professional Learning</td>
</tr>
<tr>
<td>Ming Fai Pang</td>
</tr>
<tr>
<td>23 Changing Cultures of Knowledge and Professional Learning</td>
</tr>
<tr>
<td>Monika Nerland and Karen Jensen</td>
</tr>
<tr>
<td>Volume 2</td>
</tr>
<tr>
<td>24 Identity and Agency in Professional Learning</td>
</tr>
<tr>
<td>Anneli Enilapirho, Kirija Valisäntanen, Päivi Hukkanen, and Susanna Paloniemi</td>
</tr>
<tr>
<td>25 Simulation Learning</td>
</tr>
<tr>
<td>Jan Berekwoldt, Hans Gruber, and Andreas Wittmann</td>
</tr>
<tr>
<td>26 Learning from Errors at Work</td>
</tr>
<tr>
<td>Christian Harteis and Johannes Bauer</td>
</tr>
<tr>
<td>27 Learning in the Circumstances of Professional Practice</td>
</tr>
<tr>
<td>Stephen Billett and Raymond Smith</td>
</tr>
<tr>
<td>28 Apprenticeship as a Model for Learning in and Through Professional Practice</td>
</tr>
<tr>
<td>Geoffrey Gowland</td>
</tr>
<tr>
<td>29 Implicit Knowledge and Work Performance</td>
</tr>
<tr>
<td>Brita Herbig and Andreas Müller</td>
</tr>
<tr>
<td>30 Intuition in Professional and Practice-Based Learning</td>
</tr>
<tr>
<td>Eugene Sadler-Smith</td>
</tr>
<tr>
<td>31 An Organisational Perspective on Professionals’ Learning</td>
</tr>
<tr>
<td>Bente Eikjaer and Ulrik Brandt</td>
</tr>
<tr>
<td>32 Professional Learning in the Ambulance Service</td>
</tr>
<tr>
<td>Morten Sommer</td>
</tr>
<tr>
<td>33 Mimetic Learning at Work: Learning Through and Across Professional Working Lives</td>
</tr>
<tr>
<td>Stephen Billett</td>
</tr>
<tr>
<td>Part V Implementing and Supporting Professional Learning</td>
</tr>
<tr>
<td>34 Professional Development and the Profession</td>
</tr>
<tr>
<td>Anton Haves and Jens-Christian Smeyl</td>
</tr>
<tr>
<td>35 The Real Professional is a Learning Professional</td>
</tr>
<tr>
<td>P. Robert-Jan Simons and Maers C.P. Ruijters</td>
</tr>
</tbody>
</table>
Contents

36 Team Learning in Education and Professional Organisations 987
Filip Dochy, David Gijbels, Elisabeth Raes, and Eva Kyndt

37 Teams, Communities of Practice, and Knowledge 1021
Networks as Locations for Learning Professional Practice
Victoria J. Marsick, Andrew K. Shiotani, and Martha A. Gephart

38 The Role of Human Resource Development 1043
in Organizational Change: Professional Development
Strategies of Employees, Managers and HRD Practitioners
Rob F. Poell and Fred J. Van Der Krogt

39 Mentoring as a Strategy for Facilitating Learning: 1071
Protégé and Mentor Perspectives
Lillian Turner de Tornes Eby, B. Lindsay Brown, and Kerrin George

40 The New Professionalism: An Exploration 1099
of Vocational Education and Training Teachers in England
Janis Avis and Kevin Orr

41 Older Professionals, Learning and Practice 1125
Tarja Irene Tikkanen and Stephen Billett

42 Promoting Practice-Based Innovation 1161
Through Learning at Work
Per-Erik Eilström and Per Nilson

43 Technology-Enhanced Professional Learning 1187
Allison Littlejohn and Anoush Margaryan

Part VI Assessing Professional Learning

44 Evaluating Professional Learning 1215
Thomas R. Guskey

45 Assessment of Professional Competence 1237
Dione E.H. Tijelaar and Cees F.M. van der Vleuten

46 Assessment of Professionals’ Continuous Learning in Practice 1271
Tara J. Fenwick

47 The Influence of Evidence-Based Decisions 1299
by Collaborative Teacher Teams on Student Achievement
Patrick Griffin, Esther Care, Judith Crigan, Pamela Robertson,
Zhonghua Zhang, and Alejandra Arratia-Martinez

48 Large-Scale Assessment of Vocational Education and Training 1333
Frank Achtenhagen and Esther Wisneta

Index 1355

Contributors

Madeleine Abranid Dahlgren Department of Medical and Health Sciences, Linköping University, Linköping, Sweden

Frank Achtenhagen Faculty of Economics, University of Göttingen, Göttingen, Germany

Alejandra Arratia-Martinez Assessment Research Centre, Melbourne Graduate School of Education, University of Melbourne, Melbourne, Australia

James Avis School of Education, University of Huddersfield, Huddersfield, UK

Johannes Bauer TUM School of Education, Technical University of Munich, Munich, Germany

Stephen Billett School of Education and Professional Studies, Adult and Vocational Education, Griffith University, Brisbane, QLD, Australia

Ulrik Brandt Department of Education, Aarhus University, Aarhus, Denmark

Jan Breekwoldt Vice-Deanery of Education, Faculty of Medicine, University of Zurich, Zurich, Switzerland

Peter Brooks Australian Health Workforce Institute, University of Melbourne, Melbourne, Australia

B. Lindsay Brown Department of Psychology, University of Georgia, Athens, GA, USA

Esther Care Assessment Research Centre, Melbourne Graduate School of Education, University of Melbourne, Melbourne, Australia

David Carr Professor of Ethics and Education, Jubilee Centre for the Study of Character and Values, University of Birmingham, Birmingham, UK

Sarojini Choy School of Education and Professional Studies, Griffith University, Motueka, New Zealand
Chapter 9
Understanding Learning for Work: Contributions from Discourse and Interaction Analysis

E. Lefevre

Abstract In recent years, interaction and discourse analytic methods have been applied extensively in various areas of educational research and have become an important theoretical perspective for those concerned with the study of learning in social settings. Following this innovative perspective, this chapter advances a discursive and interactionist approach on professional practice and learning. It focuses on how the professional practice can contribute to the body of concepts and theories. First, it discusses the idea that adopting a discursive and interactionist approach to professional practice can contribute to understanding the potential of practice-based learning. Second, it discusses the methods applied for understanding practice-based learning. And second, it discusses the potential and limitations of these methods and what are their potentials and limitations for practical implications for rethinking the field of professional and practice-based learning.

Keywords Discourse • Interaction • Language • Knowledge • Identity • Context • Multidisciplinarity

In recent years, interaction and discourse analytic methods have been applied extensively in various areas of educational research and have become an important theoretical perspective for those concerned with the study of learning in social settings. Initially conceived as descriptive tools elaborated by linguists for describing the complex organization of language use in context, these methods have progressively been seen as powerful resources to gain a fine-grained understanding.

L. Lefevre (Ed.)
Faculty of Psychology and Educational Science, University of Geneva, Geneva, Switzerland
email: laurent.lefevre@unige.ch


of teaching and learning processes in a wide range of formal and informal educational contexts. By studying discourse and interaction within classroom and workplace settings, researchers have provided new insights into the dynamic relationships among language use, social practice, and learning. More specifically, they have provided understandings of the ways in which learning opportunities are constructed across time, groups, social institutions, and joint actions.

Following this innovative perspective, this chapter advances two main arguments. First, it stresses the idea that adopting a discursive and interactional approach to professional practice can contribute to the body of concepts and methods applied for understanding practice-based learning. And second, it considers that there exists a strong epistemological continuity between social theories of learning on the one hand, and research methods belonging to the field of discourse and interaction analysis on the second hand. From there, the aim of the chapter is to identify and specify an interdisciplinary field intersecting linguistics methods and professional education research. It is also to show what these methods consist of, how they may be enacted and applied and what are their potentialities and practical implications for researching the field of professional and practice-based learning.

To address these issues, the chapter is divided in five main sections: the first section retraces the origins of a so-called workplace discourse research field. It reflects on the growing importance of discourse and interaction within contemporary workplaces and emphasises the role of language in social theories of learning, as they have been extensively disseminated within vocational and professional education research. These bring empirical as well as theoretical arguments for an interdisciplinary examination of discourse-mediated practices through which workers encounter learning experiences at work. The second section is designed to provide the reader with a synthetic understanding of theory and interaction analysis. Key concepts and principles underlying this multidisciplinary field are exposed and the main requirements underlying methodological aspects are briefly summarised. The third section illustrates how the role of discourse and interaction may contribute to the understanding of professional and practice-based learning. It identifies a range of research topics that have been investigated from an interactional and discursive perspective and reports recent research conducted internationally on these topics. Section 4.4 provides further illustration of how discourse analytic methods may be enacted to inform practice-based learning research. Referring to empirical data recently collected in the context of the Swiss vocational education and training system, the chapter observes how guidance is interactively accomplished in discourse and how apprentices and supervisors use a variety of argumentative resources to shape learning opportunities in work production activities. To conclude, the fifth section discusses the potentialities and challenges associated with a discursive methodology and stresses its practical applications and implications for vocational and professional education.

4.1 The Emergence of Workplace Discourse Research

In the past two decades, a growing number of scholars with an expertise in various areas of linguistics have become interested in analysing and interpreting empirical data collected in professional settings. Depending on their theoretical backgrounds and origins, research topics conducted in this area have evolved multiple labels, including for instance institutional talk (Drew and Heritage 1992), professional discourse (Caron et al. 2002), workplace studies (Kehoe, Krohnbraun and Luff 2000), organizational discourse (Boden 1994), language in the workplace (Boutet 1998, Høines and Stabile 2003), business discourse (Bargiella Chiappini 2009) or workplace discourse (Boozer 2010). This body of research does not constitute a unified and well-integrated research field, but it assumes that a fine-grained analysis of how workers make use of language, both in its oral and written forms, may contribute to better understand professional practice and the conditions in which it takes place. Reciprocally to this "professional turn" in applied linguistics, it is also argued that researchers in adult and vocational education often stress the role of language in professional learning and development and therefore refer to concepts related to linguistic theories.

Drawing on the idea that there is a growing interest for an interdisciplinary approach, this chapter examines both linguistic and professional education research, this chapter looks at the relevant and productive to cure about discourse and interaction when investigating professional and practice-based learning. In the following paragraphs, empirical as well as theoretical arguments are brought for a more rigorous cross-examination of learning for work. We stress the importance of language and interaction processes in workplace practices and argue for epistemological continuities between social theories of learning and the study of language in action.

4.1.1 The Linguistic Demands of the Contemporary Workplace

There are strong empirical reasons why researchers concerned with the study of learning in and for professional practice should be concerned about the role and place of discourse and interaction in the workplace. As numerous sociolinguists have pointed out, the historical evolution of work itself has established increased demands regarding language use and communication skills. In today's adult professional practice, workers are expected to share information, solve problems, to cooperate with colleagues, to plan future actions or report on tasks, and to adapt to what is often referred to as the "new work order" (Gee et al. 1996), an economy that is strongly dominated by the service sector, by information and communication technologies, by a demarcation of production and by globalized management strategies. In many respects, the contemporary workplace sees language use not only as a peripheral
ingredient but as a central component through which professional practice occurs: law or social work. But these linguistic demands are also becoming increasingly significant in other domains from which they where historically perceived as abdant or peripheral, such as the industrial sector for instance. It is now commonly expected from all workers that they should be able to cooperate with colleagues, have sufficient literacy and numeracy skills, adapt to norms and procedures that may take written or oral forms, and be capable of reflective thinking. In other terms, discourse and in action processes have become progressively perceived as productive resources and not anymore as a mere distraction.

In recognising the confining role of discourse and interaction in everyday workplace, sociolinguistics have also highlighted the multiple functions performed by linguistic resources in workplace contexts. These functions include providing social as well as cognitive dimensions of professional practices (Lynott, 2011). This language use at work has often been reported as serving practical function: it is by engaging in discourse and interaction that workers "get things done", that they plan and anticipate future actions, perform them, and provide accounts and evaluations about past events. Second, linguistic resources are also used by workers in response for accomplishing the social dimensions of professional practices. They are means through which workers position themselves in groups, encode specific action, produce or reproduce cultural communities or establish power relations. Finally, linguistic resources as they are used in workplace discourse and interaction also serve cognitive processes related to memory, problem solving and learning. It is by engaging in discourse and interaction that workers share and negotiate joint understandings of the world, that they take decisions, reflect on their experiences and that they may learn from more experienced workers.

Acknowledging the centrality and multifunctional nature of language use in professional practice has significant implications for vocational and professional education. These implications include reinforced expectations in terms of training and a renewed understanding of the skills and competences workers must share in facing the demands of the contemporary workplace. It is indeed of primary importance to prepare and adapt the workforce to the multilingual, globalised and discourse-mediated professional practices dominating the "new work order". And it is also important to provide workers with resources that may assist them in facing specific demands. At a more theoretical level, these evolutions also shed new light on the ways language and communication skills may be perceived in vocational and professional education. In the contemporary context referred to, these skills are not to be seen as "soft" or related to a general cultural background; rather, they are to be considered as key instruments for professional practice and as integral components of professional competences. Finally, it should also be noted that the "integration" turn mentioned here leads to reconceptualisation of the relations linking language and education. Language, in such a perspective, is not only a matter of teaching and learning or a cultural tool that has to be acquired; it is also a means through which workers experience learning at work and therefore an important condition for learning through practice. This is what the next section proposes to develop.
literally transformation. That is, under specific conditions, including participation in communicative events, newcomers are progressively recognised as members of communities of practice as they move from peripheral to full participation.

Another particularly interesting contribution to this field is Billot's model of "relational dependencies" between social and personal ingredients to learning in and through practice as related to "participatory practices" by which workers gain access to specific actions in workplace contexts. But, as pointed out by Billot (2001a), "it is inadequate to believe that learning simply by just doing it will suffice" (p. 7). Both social and personal factors may either support or on the contrary hinder learning opportunities. Social factors are designated as "affordances.

Affordances include for instance the sort of guidance provided to novice workers, the type of expertise available or not and more globally the range of resources workplace contexts are able to provide to learners. Personal factors are referred to as "engagement". Engagement is related to the specific ways individual workers may make use of the resources afforded to them in the workplace. These individual factors include for instance personal values, prior experiences and personal epistemologies. Affordances and engagement are seen as key determinants of learning in the workplace and as shaped by a relation of interdependence. Interestingly, Billot's model of "relational dependencies" between social and personal components acknowledges the contributions of language, discourse, and other semiotic means of learning in professional practice. When describing efficient strategies by which close guidance may be afforded to workers, Billot (2001a, p. 144) discusses questioning dialogues, the production of models and analogies as processes through which workers elaborate, substantiate and extend their thinking. He thereby recognises the existence and potentialities of "scaffolding" strategies beyond the limits of the classroom and applies them to the understanding of professional learning.

From this brief inquiry into sociocultural theories of learning, it results that substantial connections exist between the "linguistic turn" taken by research into professional education and the ways sociolinguistics approach workplace practices. In both fields, language use is seen as a major mediating tool by which individuals engage in social practices and encounter local, cultural and psychological transformations. Based on what can be seen as a strong epistemological continuity between sociolinguistic theory and sociocultural psychology, a growing number of scholars have applied discourse and interaction analytic methods for gaining a better understanding of how individuals learn in and from professional practice. This is what the next sections will illustrate and discuss.

9.2 Principles, Concepts and Methods of Interaction and Discourse Analysis

What is exactly discourse and interaction analysis and what underlying theoretical principles is it based on? There are of course many different ways to answer these questions but a common way to refer to discourse and interaction analysis is to define it as the study of language use in relation to specific institutional and cultural contexts and with regard to its cognitive and social implications (Wodak and Meyer 2004). Discourse and interaction analysis does not constitute a unified research field but should be seen as a multidisciplinary approach made of a plurality of paradigms. The selected methodologies draw upon concepts and analytic categories from various fields of linguistics, such as interactional sociolinguistics (Gumperz 1982), conversation analysis (Sacks et al. 1978; Schegloff 2007) and critical discourse analysis (Van Dijk 1997; Wodak 1997). These fields have explored multiple aspects of linguistic forms and are often seen as offering competing or contradictory approaches for analysing discourse and interaction. Nevertheless, these frameworks also share common assumptions about language and social life. In particular, they view language not only as a way of transferring information from speakers to listeners, but as a historically and culturally shaped medium through which individuals act, achieve cooperation, align identities, participate in social events and share a joint understanding of the world in which they evolve. In observing the concrete actions among members and describing how these members communicate and interact, discourse analysts examine what members produce together, what they fail to say or do, and how they choose to say things. They do so by identifying patterns of practice that make visible what members need to know, produce, and interpret to participate in socially appropriate ways.

Beyond the internal boundaries that delimit distinct trends and affiliations in discourse analysis, a number of concepts and methodological requirements can be seen as shared principles across interaction and discourse analysis. In this section, these principles are made visible and a range of assumptions are selected that may be helpful to understand how discourse and interaction relate to professional and pedagogical learning.

9.2.1 Key Concepts in Interaction and Discourse Analysis

In what follows, four key concepts are presented and commented, that have been broadly applied in various trends in discourse and interaction analysis: contextual inseparability; situated identities; sequential organisation and multimodal meaning making. It might be arbitrary to focus exclusively on these four categories, but these concepts shape diverse properties of discourses and relate to complementary theoretical perspectives adopted in the field. They can be seen as good candidates for introducing the field of discourse and interaction analysis.

The first concept closely related to a discourse analytic perspective is that of contextual inseparability. This concept relates to the idea that language use is seen as being conversationally linked to the contexts in which it is produced. It is indeed widely accepted amongst discourse analysts that discourses contain multiple and complex relations with the social and material conditions in which they take place. On the one hand, discourses are often seen as being shaped by contexts in the sense that historic, cultural and material arrangements exert a form of influence on the
ways discourses are produced. But on the other hand, discourses are also shaping these contexts in the sense that participants may use linguistic resources to make them visible how they interpret specific contextual arrangements (Diani, 1992). Within interactional sociolinguistics, Erving Goffman’s framing theory has often been used as an important contribution to such a dynamic and contextualized concept of context in discourse analysis. This theory stresses the idea that the meaning of ordinary perceptions and human behaviour is highly precipitated in the way individuals interpret social reality and adapt their own conduct to such interpretations. Developing William James and Gregory Bateson’s ideas, Goffman considers that these framing processes are never fixed, but are vulnerable to change. People may misunderstand the meaning of contextual arrangements; they may also be abused or influenced to produce false interpretations. Finally, they may also revise the meaning they attribute to the reality they experience in social life. From such a perspective, “contexts” can be seen as the result of a process of “contextualisation” through which participants jointly negotiate how to interpret the conditions in which social actions take place. Such a renewed perspective on context and contextualisation deeply transforms the way the relations between contexts and language in social interaction is being looked at. As put by Gregory (1982) amongst others, language use in interaction is not only shaped by the external conditions in which it takes place, it is also “context renewing” in the sense that participants may use it as “cues” to make inferences about what the context itself is telling them about how to initiate changes to its local configuration.

Closely related to the principle of contextual indexicality, the notion of shared identity has often been used by discourse analysts to understand how participants in social interaction position themselves according to each other and with regard to broader cultural and institutional arrangements. Following Goffman again, these processes of positioning are not perceived as determined by pre-existing social roles, but endorsed by participants in discourse and interaction itself (Goffman, 1951). It is by “doing being” a person of a certain kind that participants endorse particular identities in social action and that they place co-participants in a reciprocal position. To capture this dynamic concept of relational work in interaction, the concept of situated identity has sometimes been used to stress how social relations are deeply shaped by local arrangements. For Zimmerman (1998), “situated identities come into play within the precincts of particular types of situations” (p. 90). These situations are effectively brought into being by participants engaging in activities and projecting specific agendas. It is by endorsing specific roles in discourse that participants display an orientation to these situated identities and that they make visible how they align or not the social roles attached to them. In that sense, situated identities are very much a product of discourse and interaction rather than a personal attribute belonging to individuals.

To understand how these contextual arrangements and situated identities are dynamically produced in discourse and interaction, the concept of sequential organisation has often been used to capture the local temporal processes through which interaction unfolds. The notion of sequential organisation has been primarily investigated by conversation analysts and ethnomethodologists, who see it as a

natural principle underlying situated interaction (Sacks 1992; Schegloff 2007; Ten Have 2007). By using the concept of sequential organisation, conversation analysis studies the way in which social actions are jointly accomplished by a plurality of participants doing activities not as an arbitrary way but reflect a specific social order. To align to this social order and to make it visible, participants engage in fine-grained coordination processes through which they take turns, use adequate places for leaving the floor to co-participants and interact with the successive steps by which action is accomplished. From there, conversation analysts consider the sequential organisation of talk-in-interaction as the dynamic process through which participants make their actions publically accessible and shape interpretations about what they perceive as relevant in the context. The machinery of interactive talk in interaction becomes a resource for interpreting how participants interact with each other and accomplish a joint understanding of their actions.

The sequential organisation of interaction and its contribution to the understanding of participation and the endowment of situated identity does not exclusively rely on participants; on the contrary, it also involves a wide range of other semiotic systems that participants may use as resources for coordinating their participation. To refer to the multitude of semiotic resources combined in discourse and interaction, the concept of multimodality has recently emerged as a solid reference point within Discourse theories. Multimodal discourse and interaction analysts originate from a variety of subdomains of linguistics such conversation analysis (Goffman 1974), critical discourse analysis (Levine and Scottson 2004; Norris 2004) and social criticism (Kress and Van Leeuwen 1996). These various disciplines have developed different approaches to discourse and interaction, but they also share a tendency to see them as a form of logocentric view on language and communication. The concept of multimodality relates to the plurality of semiotic modes combined in human behaviour (texts, images, objects, voices, acts, etc.) and to the local arrangements through which they are used as tools for accomplishing social actions. For multimodal discourse and interaction analysts, participants are constantly engaged in complex meaning-making processes in which they have to produce a joint understanding of their actions. It is by using and combining a plurality of modes that they produce and interpret meaning in context and that they elect to orient to specific resources (or not). Considering that these choices are not arbitrary but also, to some extent, shaped by the specific potentialities of these resources themselves and the conditions in which they are used, multimodal discourse also expresses forms of agencies through the specific ways they make use of semiotic tools in interaction. Here is another instance of the close connections that exist between semiotic forms and their psycho-social implications.

9.2.2 Methodological Implications

The concepts presented above and the theoretical principles they are aligned with have significant implications at methodological level. Discourse and interaction analysts do not use the same research methods, but the methodologies they enact differ, at least to some extent, convergent lines that can be specified as follows.
One first way to specify the methodological requirements underlying a discourse perspective relates to the role and nature of data used for research. Empirical data is central for discourse and interaction analyses, in the sense that they constitute the primary material on which the analysis is based. Data consist in written and oral specific contexts. Discourse and interaction analyses usually do not artificially provoke the data they are putting under scrutiny. They collect these data in the natural data from there, close connections often exist between discourse analysis and the ethnographic perspective (Gee and Green 1998). Data collection should not be seen as a capturing process from which the observer is radically absent. On the contrary, it is the outcome of a joint elaboration and the result of a complex mutual process in which the researcher has progressively acquired an understanding of the observed practices and made his presence understandable and acceptable to the observed participants.

A second way to specify methodological requirements associated with discourse and interaction analysis is to comment on the sorts of technologies used for collecting data. For capturing the indexed, dynamic and multimodal nature of situated interactions, discourse and interaction analysts have progressively come to use video recordings for research purposes (Erickson 2004a; Heath et al. 2000). Video recordings of naturally occurring talk-in-interaction capture the fine-grained details of how interaction unfolds, its relations with specific material and practical arrangements, and the complex range of semiotic resources used and combined by participants. The filming of discourse and interaction itself is not perceived as an objective process that gives direct access to all aspects of social practices. On the contrary, discourse and interaction analysts consider that recordings are very much shaped by the researchers’ choices and by the kind of relation researchers establish with the individuals they observe. From there, audio-video recordings of naturally occurring talk-in-interaction also express subjective and interpretative dimensions.

Discourse and interaction analysis usually never work directly on audio-video recordings but produce mediated forms of data consisting in transcripts. Transcripts give a written and synthetic form of verbal and non-verbal behaviour as they unfold on audio-video recordings. They do not capture all aspects of what is possible to perceive on these recordings but make relevant details available to the analysis by using explicit transcription conventions. Apart from conversation analysis, which has developed a well-established and explicit conversational system (Jefferson 2004), there does not yet exist a unique and unified convention regarding the way to produce transcripts. These norms and practices are largely dependent on the purposes of the analysis itself and have to be regarded as theoretically oriented (Ochs 1979). However, beyond these theoretical variations, discourse and interaction analysts usually align to the principles underlying their conception of language use in context. Most of the transcripts aim at capturing the dynamic and sequential nature talk-in-interaction and have progressively integrated a growing range of information related to multimodal aspects of interaction (Norris 2004).

It is based on these transcripts and the audio-video recordings they refer to that discourse and interaction analysts produce interpretations about the social practices they study. The analytic approach underlying this perspective is highly qualitative and based on only the contents expressed in the data. Details regarding the unfolding process of interaction are seen as meaningful cues for understanding how these contents have been understood by participants themselves. From there, analytic interpretations are based both on a general ethnographic understanding of the contexts in which data has been collected and on the qualitative properties of these data and their dynamic unfolding.

9.3 Discourse and Interaction Analysis as a Tool for Understanding Professional and Practice-Based Learning

By shifting the focus from the description of the linguistic system to the organisational social action, interactional and multimodal approaches to discourse have progressively been seen as research methods beyond the limits of linguistics. In many areas of educational research, discourse analytical methods have been applied as a way to explore multiple facets of educational practices (Rex et al. 2016). In the field of teaching and learning in schools for instance, concepts and tools borrowed from conversation analysis and interactional sociolinguistics have been extensively applied to describe and understand the specific patterns of classroom interaction and the conditions under which students access knowledge in the context of the classroom (Gee and Green 1998; Macbeth 2003; Melhuish 1979; Mercer and Howe 2015). Applied linguistics have also adopted a multimodal perspective for understanding how teachers and students make use of multiple semiotic modes to engage complex meaning-making processes in class (Kress et al. 2001).

Recently, discourse analytic tools have also been applied in vocational and professional education research so as to account for educational practices that take place outside the specific school context. In the following paragraphs, we highlight a range of research topics that have been investigated with a methodological focus on discourse and interaction and stress how these research topics illuminate our understanding of professional and practice-based learning. To do so, we will report mainly on our own work but also on a more general body of research conducted in European countries and beyond.

9.3.1 Knowledge Transmission and Acquisition

One first research area for which discourse analytic methods may be fruitfully applied relates to the understanding of the complex sorts of knowledge underlying professional practice and the specific ways these knowledge are made accessible to
workers in practice. Workplace learning theories usually consider that professional learning relates to multiple sorts of knowledge, including conceptual, procedural and dispositional components (Billiter 2001a, p. 50a). But little is known about the ways these various components of professional learning are transmitted and acquired, and how discourse and interaction helps workers to make these knowledge visible and accessible.

In an extensive research program conducted in our team at the University of Geneva, we precisely addressed these sorts of issues and aimed at understanding how apprentices enrolled in practice-based apprenticeship programs in Switzerland gain access to vocational knowledge in the different institutional contexts in which they are trained. Based on audio-video recordings of naturally occurring interactions between apprentices and various sorts of trainers, the research program was designed so as to access and describe typical discourse practices by which professional knowledge is shared between experts and novices. Various strategies for providing instruction in the workplace were identified, most of them being finely tuned to the unfolding of productive work task (Fillettaz 2009a). From the data analysis, we also observed that both vocational and workplace supervisors abundantly use analogies when referring to vocational knowledge and skills (Fillettaz et al. 2010b). We described the main forms and functions and such analogical discourse and showed how it serves both cognitive and social purposes in instruction. We also described how specific contents are systematically reformulated and resemantized when teachers and trainers give explanations to apprentices (Fillettaz et al. 2010a). And finally, we observed how workplace supervisors handle questionnaire dialogs in the workplace: how they respond to questions asked by apprentices and how they address questions to apprentices (Fillettaz 2011a). Our observations in this area show that answers are surprisingly neither the sole nor the dominant form of responses following questions in the workplace. Beyond these linguistic aspects of knowledge transmission and acquisition, the same research program also allowed to investigate the role and impact of the material environment on teaching and learning processes. Building on a variety of empirical contexts including car mechanics and the building industry, we described how teachers and trainers handle technical objects and make use of the material environment in order to make perceptual components of professional knowledge accessible to apprentices (Fillettaz 2010b). These descriptions provide evidence to the idea that space and materiality should not be seen as a mere static setting in front of which instruction unfolds, but as a key resource shaped and designed by teachers and trainers in their everyday situated practice.

In a completely different empirical field, that of medical doctors' training in the UK, Robert et al. (2000) also used discourse analytic methods to reveal implicit and often hidden aspects of professional knowledge. Observing that medical...
across contexts. In some cases, they took the form of complementarities and continuities across evolving steps of work tasks. In other circumstances, they consisted of misalignments or controversies between competing workers.

In the French context, the field of professional didactics, a number of researchers have also become interested in the role of “tutoring,” “guidance” or “supervision” in workplace learning and have highlighted the mediating role of discourse and interaction in the ways apprentices develop skills and competences in the workplace. (Kunig 2005, 2011; Meyen 2002). In his PhD dissertation devoted to apprenticeship in the field of car-mechanics in France, Kunig, for instance describes a dynamic model capturing the relational configurations between apprentices and supervisors at various stages of the apprenticeship pathway. Kunig suggests six successive steps, including a phase of “familiarisation”, a phase of “instruction” and a phase of “attribution of work production tasks”. The main interest of this model is to show that there seems to be a strong alignment between the level of competences apprentices are expected to display and the sorts of verbal or non-verbal interaction between apprentices and their supervisors. The most interesting contribution of this model is that it proposes to see these interactions as evolving in time and not as given or static realities. From this standpoint, language and communication between apprentices and supervisors serve as a function of central mediating tools for understanding the relations between practice and learning.

In a different context, that of air traffic control, Kostakfa and Palka (2011) made similar observations. Applying the tools of conversation analysis and ethnography, they explored the ways in which trainers and trainees act and interact in training situations and aimed at identifying methods of guidance and supervision in this particular context. By collecting and analysing video recordings and ethnographic material gathered at a vocational institute for aviation and in two aerodrome control tower units, Kostakfa and Palka identified different instructional strategies by which trainers guided and controlled the trainee's actions. They showed that trainees progressed from simulated training to the on-the-job training phase, interaction evolved from being trainer-driven to trainer-guided. These results suggest that instructions and information deliveries are finely tuned to the trainees performance, and the local practices of particular work position endorsed at various steps of the training program.

Within the similar framework of ethnography and conversation analysis, Mondada (2006) also explored patterns of interaction between trainers and trainees in work-related contexts. Her study focused on professional training in the field of surgery and aimed at identifying specific aspects of the competence trainees must acquire and display to participate adequately to complex training practices. The data used for this study consisted in audio-video recorded surgical operations available through online video conferences and duty of surgeons, the latter of which carried out the surgery. The analysis of these data consisted in describing the local environments in which questions were asked and the ways in which participants dealt with these questions in the complex training context of work and training.
themselves and for apprentices and allowed extra time for providing insight into the apprentice.

In some other companies, time pressure resulted in a lack of time for apprenticeship.

Also noteworthy is Akkerma and Baken’s study about vocational training practices in the Netherlands (Akkerma and Baken 2012). Deploying the theoretical notion of boundary crossing, the authors conducted fieldwork and ethnographic observation in a Dutch senior secondary vocational laboratory education program and investigated the actions and interactions taking place between school and work during apprenticeships. The study aimed at taking into account both cognitive and identity-related aspects of learning. It consisted in analyzing how apprentices’ experiences at work were discussed and reflected upon with students and teachers at school. The findings revealed that what students were expected to learn at work-related practices was largely rendered invisible by the technology-mediated, scripted and socially distributed nature of their work. From there, release days were seen to provide initial ways to explain and reflect with teachers on what was going on at work. They worked as useful contributions to vocational learning and provided a good illustration of how school and work institutions can mutually feed each other in facilitating apprentices’ learning. Here again, a fine-grained analysis of talk-in-interaction collected in training sessions during release days was used as a means to understand the sorts of learning experiences made by apprentices across various training institutions and practices.

In a rather different empirical context, the research conducted over the past 15 years at the Victoria University of Wellington in the so-called Language in the Workplace Project (LWP) also contributed in a significant way to the sociocultural methods for integrating theoretical and practical aspects of professional education. Since 1996, Janet Holmes and her team began an innovative study of spoken communication in New Zealand workplaces aiming at identifying the characteristics of effective communication between workers, documenting workplace practices of workplace 2012), and exploring possible applications of the findings for New Zealand workplaces. Data collection began in government organizations and was progressively expanded to factories, small corporate workplaces, medical settings and IT companies. Volunteers in each organization audio-taped everyday work-related meetings or discussions, telephone calls or social conversations. Detailed and systematic analysis of these data resulted in highlighting the complex sociocultural skills displayed by workers when collaborating with colleagues (Vine 2004), doing relational work (Holmes and Stubbe 2003), or exercising leadership at work (Holmes et al, 2011b). Recently, the data and (analyses) gathered in this particular research area were also used as teaching materials for workplace apprentices’ needs (Holmes et al. 2011a-1b).

In an academic context, learners with a migrant background learnt to identify and interpret sociocultural demands of the workplace by observing and analyzing empirical data collected in workplace contexts. Later on, they also used workplace experiences to make use of what they learnt and to reflect on these sociocultural skill

9.4 Learning Through Practice as an Interactional Accomplishment

Beyond the general description of the sorts of research topics that have been recently investigated with a discursive lens, it is also important to understand how analytic tools borrowed from discourse and interaction analysis can be effectively enacted to address subjects of increased attention in vocational and professional education. In this section, these contributions are illustrated by narrowing down the scope on the topic of learning through practice and by investigating the role of contextual variation in the ways workers experience learning in professional practice. These learning experiences and contextual variations are seen as accomplished in and through interactions between co-workers and the social and material environment in which they engage.

Notions of workplace learning have stressed the idea that workplaces are not equal in the resources they provide to learners and that their qualitative properties may differ in substantial ways (Tynjälä 2008). For example, Fuller and Unwin (2003) have presented a continuum of restrictive vs. expansive environments with regard to how these support workplace learning. Restrictive environments are characterized by the fact that they afford limited opportunities for apprentices to be recognized as legitimate learners and learning from their work. In the contrary, expansive environments are supportive to learners, afford rich learning tasks and generate opportunities for apprentices to be recognized as legitimate learners and workers. This distinction, which should be seen as a continuum, argues for the configuring role of contextual variation in learning for and through practice.

From this standpoint, it becomes increasingly important to understand how contextual arrangements in the workplace may influence learning opportunities and create different pathways through practice-based training programs. It becomes also necessary to understand the role played by skilled professionals in helping novice workers to learn in and from practice and to assist these professionals to focus on the resources they need to use to adapt the workplace into a training site. Moreover, addressing these challenges from a research perspective raises a number of theoretical and methodological issues: how do contextual and individual factors interact in the possibility for workers to learn in and from practice? How can learning opportunities in the workplace be defined, observed and understood? How can one account for contextual variation across workplace environments and identify contextual arrangements that support learning opportunities?
To illustrate the benefits of a discursive and interactional perspective in understanding contextual variation and its impact on learning in informal, non-stationed work contexts, we now turn to empirical material collected in the context of the above-mentioned research program dedicated to apprenticeship training in Switzerland. In the following sections, two contrasting case studies are provided, documenting two different on-the-job learning contexts involved in the production of parturition valves located in the Geneva area. The two training sites belong to the trade of car mechanics and involve first-year apprentices at the very beginning of their apprenticeship. The first case refers to the mechanics workshop of a large public car repair shop, where Michael, a first-year apprentice in mechanics and Larry, an official supervisor and manager of the repair workshop, work as an apprentice. The second case refers to a small-sized private car repair shop, where Samuel, an official supervisor and manager of the repair workshop, works as an apprentice. The two participants belonging to these two work and training sites have been observed regularly on a voluntary basis during several weeks in spring 2006. With their consent, observations were video recorded by the researchers. These recordings took place after a period of preparation in which participants got used to the presence of the researchers and a relation of mutual confidence was established between partners. By observing and analysing brief excerpts of audio-video recorded data documenting naturally occurring interactions between these apprentices and their trainer, the following range of questions will be addressed, related to the general theoretical frame mentioned above: What sorts of learning opportunities are being afforded to apprentices in these two distinct workplaces and how do apprentices engage with these opportunities? How do workplace supervisors and apprentices reconcile production constraints with training and learning purposes? In what sense can these work and training environments be regarded as expansive or restrictive forms of participation? And what are the components of discourse and interaction to the ways participants shape and transform the work contexts in which they engage?

9.4.1 Transforming a Maintenance Procedure into a Teaching Sequence

The first case relates to a car repair shop belonging to a large public facility (Company A). Michael (MIC), a novice apprentice, works in close collaboration with Larry (LAR), an experienced mechanic who acts as a supervisor and trainer within the workplace. Both the apprentice and his supervisor are conducting a maintenance procedure on a truck. At the beginning of the excerpt transcribed next, they initiate a new task included in the maintenance procedure: the cleaning and fine-tuning of the valves located at the top of the six cylinders composing the engine. Michael and Larry are standing next to each other, in front of the open hood of the lorry, when Larry initiates the following sequence of interaction.
According to Kember’s dynamic model of tutoring (Kember, 2005), a specific type of guidance or training model—that of guided participation—can be recognised in the excerpt just presented. Michael, the apprentice, is not working on his own or in isolation from other workers; rather, he is closely supervised by Larry, who spontaneously provides guidance and takes responsibility for conducting the maintenance procedure. At the beginning of Excerpt 1, both Michael and Larry face a specific practical problem related to the “productive” dimension of their work. To turn the cylinder head to place it in an adequate position, they must access a gear door located below the engine. This requires the mechanic to lie on his back below the lorry and use a sort of trolley to work in a comfortable position. Since the trolley is stored in the basement of the workshop, the supervisor proposes to leave the apprentice alone for a moment while he looks for the trolley.

Interestingly, the trainer does not see this practical problem as a mere production episode, but presents various learning opportunities to the apprentice before leaving him alone. First, Larry provides a verbal account of the problem and explains why he needs a trolley for cleaning the valves of the engine (1). Second, he makes three successive attempts to place the apprentice in an active position for when it will remain alone. The first attempt consists of asking the apprentice to find out where the inlet and exhaust valves are located (2). What he had to do was to look at the diagram where the inlet and exhaust valves are located (3). The second attempt (4) was to check whether or not the apprentice remembers the firing order of a six-cylinder engine (“firing order of a six-cylinder engine?”). And, the third attempt was to check whether the supervisor asked Michael to figure out which cylinder is connected to each valve (“OK, now you have the firing order you find out which cylinder is connected to each valve”, 5). From the apprentice’s perspective, it is also notable that Michael is closely aligned to the verbal exchanges initiated by Larry. He anticipates the trainer’s instructions (“I’ve already found them”), 6), takes note of his explication (6, 7, 8), and provides correct answers to his questions (6, 20).

In doing so, both Larry and Michael considerably change the local contextual arrangements underlying the interaction. They progressively transform a production procedure of maintenance into a setting in which technical knowledge emerges as a central ingredient. The trainer is not only working with the apprentice at this stage, but he is teaching the apprentice how an engine operates and how its main components interact. This contextual shift from “production” to “construction”, to use the terminology introduced by professional didactics (Pstadt et al., 2006), requires the use of a wide range of multimodal resources, including talk, body orientations, gazes, gestures and material objects. Noteworthy is the fact that this contextual shift involves a specific use of the material environment, a use in which technology does not only produce specific physical results but also supports an individual development of knowledge. It is by observing the engine and pointing to its various components (cylinders, valves, etc.) that both the trainer and his apprentice produce a first conceptualisation of how an engine operates (6). As shown in the excerpt, this process of contextual shift requires a fine-grained alignment between both participants; namely, the supervisor being aware of his apprentice being willing to train and the apprentice being aware of the supervisor’s guidance in learning opportunities.

### 8.2.2 Maintaining Production as a Dominant Action Frame

In other companies, such extensive learning opportunities tend to be scarce or they may be based on different interactional configurations. To illustrate this, a second example will be used, observed in a privately owned car repair shop in Geneva (Company B). Samuel (SAM), a first-year apprentice, is busy conducting a maintenance procedure on a small-sized passenger car, when, whilst going through the procedure step by step, he does not remember if he should change the spark plugs or not. To clarify this issue, he moves away from the car and addresses Jeff (JEF), an experienced mechanic working in another area of the workshop.

#### 8.2.3 Interaction in Company B

1. **SAM** (Conversing with JEF) 2019-03-03 10:13:59
   - Jeff, do you know where the spark plugs are? (Ex. 8.2.3)

2. **JEF** (Pointing to the spark plugs) 2019-03-03 10:13:59
   - Yes, they are here. (Ex. 8.2.3)

3. **SAM** (Conversing with JEF) 2019-03-03 10:14:12
   - Should I change the spark plugs? (Ex. 8.2.3)

4. **JEF** (Pointing to the spark plugs) 2019-03-03 10:14:12
   - Yes, you should change them. (Ex. 8.2.3)

5. **SAM** (Conversing with JEF) 2019-03-03 10:14:12
   - OK, I’ll change them. (Ex. 8.2.3)

6. **JEF** (Pointing to the spark plugs) 2019-03-03 10:14:12
   - Yes, change them. (Ex. 8.2.3)

7. **SAM** (Conversing with JEF) 2019-03-03 10:14:12
   - I’ll change them now. (Ex. 8.2.3)

8. **JEF** (Pointing to the spark plugs) 2019-03-03 10:14:12
   - Yes, you should change them. (Ex. 8.2.3)
First, it can be noted that a rather different participation configuration applies to this second example. Samuel, the novice apprentice working in this group, is fully responsible for accomplishing work production tasks on his own and he is immediately experiencing strong expectations regarding autonomy. His supervisor, Jeff, is not exclusively dedicated to training tasks but is also engaged with various specific and distinct repair and maintenance activities. This has significant implications in terms of learning and access to knowledge. These resources are not spontaneously provided to Samuel, but have to be requested by the apprentice. When facing practical problems in the maintenance procedure, Samuel has to initiate and negotiate changes in the overall participation configuration underlying the workplace context. He has to interpret his supervisor and request assistance and information (1, 2).

Interestingly, in this particular case, Jeff does not engage immediately in any way in this request for assistance, but displays various forms of resistance against when Samuel’s question, first, he does not seem to pay attention to Samuel’s question, but going on working without interruption (3). Then, he does not provide verbal information but keeps on looking at the apprentice with anger (5, 7, 9). He finally attaches the documentation and asks the apprentice to find the answer himself (“go and look in the Hyperlink documentation” (10). After the apprentice comes back with the required information, Jeff blames Samuel for his lack of autonomy and for forgetting important information repeatedly (14). These particular responses to Samuel’s request for help may have a clear impact on the ways in which the apprentice engages in interaction at this stage. First, Samuel has to rephrase his initial question addressed to Jeff because I change them? There are three of them. No? I don’t know about the total?” (4). He is then implicitly prompted by his supervisor’s insistent and disrespectful question to come up with an answer, and has to make guesses about how to deal with work in the existing context (4, 5, 8). He also has to find out the answer himself by referring to some documentation (11). Later, when earning back from the supervisor, he accounts for the solution to his problem (“right I don’t need to change the 28”, and responds to the trainer’s blaming him by producing an action of symbolic repair in the form of an apology (“sorry I didn’t remember”, 15). In sum, it appears that the local context remains strongly shaped by production constraints in this second example, and that, in contrast with the first case, work activities are not being reframed as explicit learning opportunities. The trainer does not retain knowledge and expresses resistance to interrupt his work for the sake of providing assistance to the apprentice. Elements of technical knowledge are certainly not absent from this sequence of interaction, but these elements of knowledge are not developed into a local teaching and learning opportunity. They do not result in the ways in which the participants engage in the local context, at least not in the same extent that could be observed in the previously described case. This results in a feature of misalignment between the apprentice’s need for immediate guidance and the tasks resources his supervisor is willing to provide. In the end, a climate of potentially critical and relational tension emerges between Samuel and Jeff, which illustrates a particular form of restrictive learning environment (Fuller and Unwin 2003) in which the apprenticeship is recognized as part of the workplace and not foremost as a legitimate learning environment.

From what was observed in the two case studies, it appears that apprentices experience rather diverse learning environments depending on the company in which they are trained. These environments differ in terms of access to knowledge, on which they are trained. These environments differ in terms of access to knowledge, and with regard to the willingness of supervisors to provide adequate guidance, and with regard to factors through which apprentices are expected to engage in production tasks. These environments also have an impact on the learning opportunities for apprentices. Workplaces are able—or not able—to create learning opportunities for apprentices. In some other workplaces, apprentices are closely assisted in their work, and learning opportunities may arise in the form of explicit teaching practices. In some other workplaces, apprentices are expected to be productive and autonomous very quickly, and training practices are perceived as interruptions conflicting with production constraints. It also appears that contextual variation is not only visible across workplaces, but also within each training site. Variation takes the form of a dynamic process shaping social encounters. Ordinary workplaces may evolve into virtual teaching arenas or, conversely, may remain highly determined by production constraints. Workplace supervisors and apprentices play an active role in the ways that these contextual shifts can be operated locally. It is by engaging in interaction and by using a complex range of multimodal resources that they produce or reproduce the conditions in which they work and learn. They may express an openness to forms of "contextual fluidity" and flexibility or may resist operating local transformations of these minimal arrangements.

93 Challenges and Potentialities of Discourse and Interaction Analysis

The debate on the debate on the importance of epistemological contiguity between sociocultural theories of learning and approaches to discourse and interaction developed within the broad field of socioculturalist. In line with Gee and Harrison (1998), it has been considered that “the approach to learning that is most compatible with an ethnomethodologically grounded perspective on discourse analysis is that which defines learning as changing patterns of participation in specific social contexts and communities of practice” (p. 147). Though brief literature review and case study based on empirical data, concepts such as contextual inseparability, identity and identity-related aspects of professional and practice-based learning, interaction and interaction may contribute to an advanced understanding of both sociocultural theories of learning and approaches to discourse analysis and identity-related aspects of professional and practice-based learning. Socio-linguistic and identity-related aspects of professional and practice-based learning, interaction and interaction may contribute to an advanced understanding of both sociocultural theories of learning and approaches to discourse analysis and identity-related aspects of professional and practice-based learning.
9.5.1 Challenges for Research

When adopting a discursive or interactional perspective in their research, researchers in professional and practice-based education face numerous methodological aspects, which are specified below. First, it should be highlighted that increasing ethical demands are closely associated with discourse and interaction analysis. The methodological perspective being grounded on situated empirical data and these data being hermeneutically related to social practices, it is important to recognize the potentially damaging effects data collection could have on the observed participants. Discourse and interaction analysis is not and has never been a neutral inquiry into human behaviour and institutions. It contributes to the visibility of social practices and may have an impact on the positions endorsed by participants within institutions. This stresses the importance of requirements related to access to data, permission to make use of these data and ethical clearance for research. Furthermore, it also progressively transforms the conditions in which researchers and observed participants interact and position themselves with regard to each other (Santos and Caudill 2003). As noted by many discourse analysts, researchers tend to apply their expertise and categories to the social practices they study, thereby to negotiate complex forms of collaborations with practitioners they observe. In other terms, research methods have progressively moved away from a naive “on” social practices towards empowering forms of research conducted “by” and “with” practitioners themselves. As put by Cameron et al. (1994) “we advocate and empower research as research on, for and with. One of the things we would say additional “with” it imply is the use of interactive or dialogic research methods in opposition to the distancing or objectifying strategies positivists are contrasted to use. It is the centrality of interaction “with” the researched that enables research to be empowering in our sense” (p. 22).

Beyond these ethical considerations, the type of research illustrated in this chapter maps important methodological challenges for the development of discourse analysis as an applied research for research on professional and practice-based learning. First, the type of analytical approach presented here stresses the relevance of a multimodal perspective that does not see talk as the sole or the main medium through which social interaction unfolds. As illustrated by our empirical analysis, the apprentices’ learning experiences in the workplace do not rely on language exclusively but also on a wide range of other semiotic resources. It is by positioning themselves in material environments, by establishing visual contact with partners, by pointing specific locations and artefacts, etc. that participants enact interactional participatory practices and negotiate learning opportunities in work production contexts. Secondly, the methodology underlying discourse and interaction analysis stresses the potentialities associated with a contrivive perspective. Highlighting contrasts from one context to another and from one interactional configuration to another may illuminate, as in Michael’s and Summ’s case, mechanisms of contextual variation and differentiation in learning through practice. They may also contribute to “scale up” local findings resulting from microscopic qualitative methods (link) with macroscopic realities observable at broader social levels (Mohr 2008). Finally, the type of research presented in this chapter also brings interesting arguments to the development of methods that aim at “opening up the case of discourse analysis” (Scollon and Wong Scollon 2003) by integrating a systemic and longitudinal perspective. Through a detailed multimodal analysis of sequences of interaction collected in various contexts and at different steps of training programs, discourse and interaction analysis reveals the interactional mechanisms through which knowledge is acquired and identities tend to emerge and are more and more fixed in time. Such a longitudinal perspective is often regarded of primary importance to understand how apprentices’ journey from the propelry of a learning community to its centre is reflected in the interactional processes. In our own research, we also take this longitudinal perspective as a way of moving method for investigating “situated trajectory of learning” and understanding both successful and problematic ways of experiencing transitions from school-based teaching towards practice-based learning (Duc 2012; de Saint-Georges and Remus 2008; de Saint-Georges and Duc 2009).

9.5.2 Potentials for (Transforming) Practice

We argue that the potentialities associated with discourse and interaction analysis (link) and what may be its impact on educational practices? Mercer and Howe (2003) seem to make rather pessimistic claims regarding school education and argues that “sociocultural concepts and research findings seem, so far, to have had relatively little impact on educational policy and practice” (p. 17). Is this abstract knowledge of teachers and professional education and training? In our view, significant practical implications derive from discourse an interaction analysis, as long as it is not narrowly conceived as an abstract methodology but serves to address broader social and educational concerns. One first area in which discourse and interaction analysis could benefit our understanding of practice-based learning relates to the status and place of language and discourse in vocational and professional training curriculum. Interestingly, “even challenging with vocational trainers, teachers, managers or policy makers, language” is often regarded as a limited or even narrow issue, related almost exclusively to specific contexts of teaching and learning and associated mainly with the classroom context. For most apprenticeship programs available in Switzerland in upper secondary level, the curriculum indeed includes first and second language teaching courses. However, language use is rarely regarded as being involved in different contexts in which apprentices encounter learning experiences in and across the theoretical contexts in which they are trained. To most practitioners in the field, the
remains external to the workplace. A discursive and interactional methodology, on the contrary, advances a new perspective for approaching the role of language and peripheral components of the training curriculum, but rather as central mediators of the knowledge and tools for vocational learning. According to this perspective, apprentices are not only passive recipients of vocational knowledge in the range of contexts in which training takes place. They also encounter specific discourse practices and face numerous often implicit or invisible expectations regarding the ways these discourses may be enacted and conducted. It is by engaging with these discursive practices that apprentices gain access to knowledge, develop practical skills and may position themselves in the multiple communities they belong to during their training. These language and communication skills are neither transparent nor self-evident. Like other components of vocational training, they have to be seen and must be appropriated to be learned. Obviously, some apprentices are very successful in identifying and acquiring the specific discursive demands underlying the range of practices included in their training program. Some others are not and may encounter rather challenging experiences in their journey to a professional qualification.

This last point provides a direct transition towards a second possible research implication for discourse and interaction analysis in vocational and professional education. One area in which the type of research presented here may have significant outcomes is indeed the understanding of problematic transitions from school to work. In the context of Switzerland, but in other countries as well (Billet 2002), increasing attention has been paid in recent years to the high level of non-completion, dropout and change in apprenticeship pathways. Depending on the occupational and geographical areas, between 20 and 40% of apprentices who enter the dual VET system do not complete their apprenticeships within the stated terms of their qualifications (Schedler and Nägele 2011). Of these 9% change occupation, 11% have dropped out a year, 7% change the training company, and 7% drop out from the apprenticeship system without having any immediate alternative pathway. Recent studies have investigated the causes leading to young people dropping out or making changes in apprenticeship programs (Lamanna and Modonatti 2009). These studies depict a nuanced portrait of the dual VET system and show that transitions from school to work are to some extent far from smooth and unproblematic. They conclude the poor working conditions, how support by trainers and workplace relations emerge as the main causes leading to dropout. Elaborating on these findings, the strength of a discourse analytic methodology applied to vocational education practices is its capacity to address not only the “causes”, “reasons” and “factors” that may lead to incomplete training pathways or delayed transitions to employment, but also to understand the processes by which these causes and factors are being enacted in practice, how attribution is constructed in action, and how apprentices, trainers and workers are experiencing relational and practical issues when engaging in their work. Beyond data description and analysis, what then are the contributions researchers could propose in order to promote changes in the realities they investigate? One particularly promising avenue currently being explored by our team at the University of Geneva is to use the empirical material available in the context of training...
References


Baron, D., & others (2003). *Research and practice in professional development*. Hong Kong: City University of Hong Kong Press.


