

Chapter 9

Guidance as an Interactional Accomplishment

Practice-based Learning within the Swiss VET System

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Abstract This chapter analyses how apprentices in the Swiss VET system receive practical instruction within training companies and how they are being supported and guided by experts in the workplace. It does so by paying special attention to verbal and nonverbal interaction between experts and apprentices, exploring the hypothesis that a fine-grained analysis focused on language-in-interaction could profitably inform the conditions in which learning arises from a practice-based training model. The chapter commences with a brief overview of the main issues and problems challenging initial vocational education in Switzerland. It then identifies and illustrates four distinct interactional configurations through which guidance progresses in the workplace: as spontaneously provided, explicitly requested, collectively distributed, or implicitly denied. This empirical and interactional approach, based on audio-video data analysis, contributes to a reflection on the strengths and weaknesses of a practice-based training model as it is implemented in the Swiss apprenticeship system.

9.1 Introduction

Switzerland, like other European countries, has a long-standing tradition of initial vocational education and training (VET) based on apprenticeship and workplace learning. Consistent with other VET systems, Swiss apprentices spend most of their initial training in companies, where they experience real work-related tasks and are given practical instruction by progressively entering professional communities of practice through their workplace activities. From an economic perspective, this model seems to have proven its efficiency. It provides a renewed skilled workforce and encourages progressive transitions by young workers into employment after their completion of compulsory education. Nevertheless, recent research depicts a more complex portrait of the system and shows that transitions from school to employment are far from smooth and unproblematic (Stalder & Nägele, 2009; Lamamra & Masdonati, 2009). For example, one third of Swiss apprentices aiming at a federal VET diploma break their contract before completion and a substantial number of them fail at their intermediary or final exams.

Given these circumstances, it becomes vital to reflect on the conditions under which apprentices learn from their engagement in practice. This reflection needs to address both theoretical and empirical issues. At a theoretical level, it requires conceptualising in detail the complex relations that link work and vocational training (Billett, 2008; Durand & Filliettaz, 2009). At an empirical level, it calls for a better understanding of the real circumstances in which apprentices are being guided and supported once they enter the workplace. This chapter proposes to address these issues by applying and developing innovative research methods. It analyses how newcomers in the Swiss VET system receive practical instruction within training companies and how they are being supported and guided by experts in the workplace. It does so by paying special attention to verbal and nonverbal interaction between experts and apprentices, exploring the hypothesis that a fine-grained analysis focused on language-in-interaction could profitably inform the conditions in which learning arises from a practice-based training model.

To address these issues, the chapter commences with a brief overview of the main issues and problems challenging initial vocational education in Switzerland. It then outlines a research programme¹³ that aims at a better understanding of the training and learning opportunities afforded by practical experience in various technical occupations. Particular attention is then paid to the ways trainers provide guidance to apprentices in the workplace. The empirical and interactional approach, based on concepts and methods borrowed from various perspectives in the field of linguistics, contributes to a reflection on the strengths and weaknesses of a practice-based training model. It underlines the importance of cooperation and coordination between trainers and apprentices in the process of learning at work, and argues for an enhanced preparation for trainers who have responsibilities to assist apprentices in the transition to an effective working role through their participation in the workplace.

9.2 Apprenticeship in the Swiss VET System

Organised as a multilingual and multicultural Confederation of 26 cantons, Switzerland has developed a rather complex and heterogeneous educational system.¹⁴ The VET system, for instance, is regulated both at federal and canton levels and comprises a combination of shared principles and a number of regional specificities. Amongst the various elements that enter into the organisation of VET in Switzerland, the provision of opportunities for *practice* undoubtedly plays a

¹³ This research programme is funded by the Swiss National Science Foundation (SNF) under the following reference numbers: PP00P1-106603 and PP00P1-124650.

¹⁴ For a detailed presentation of the Swiss VET system, see Stalder and Nägele (2009), Dubs (2006), or Gonon (2005).

crucial role. The importance of practice is evident in the high percentage of initial vocational training that occurs compared with general education. After completion of compulsory education at lower secondary level, 65% of the students enrol in the VET system and only one-third specialises in general education at upper-secondary and tertiary levels. In these initial VET programmes, apprentices aim to secure a federal Diploma or Certificate in one of more than 200 occupations available.

Depending on regional specificities, most initial VET programmes are available in two distinct pedagogical forms: a full-time school curriculum, and a practice-based apprenticeship programme, also known as the 'dual' VET system. In this latter format, apprentices experience various learning practices and move back and forth between distinct institutional settings including technical and general courses in vocational schools, cross-company courses to develop specific practical skills, and training in real workplaces where they are hired as apprentices. Within these training companies, apprentices are supervised by vocational trainers – qualified and skilled workers with expertise in their occupational field, but usually with very limited pedagogical training. Most of the time, the apprentices build up expertise by interacting with skilled professionals at the workplace and through undertaking productive work tasks. In Switzerland, this 'dual' form of apprenticeship constitutes the predominant form of initial vocational training, with 80% of VET diplomas being delivered in such practice-based programmes.

In the Swiss context, professional associations and companies, together with the federal state and the cantons, share the responsibility for the operation of the VET system. For instance, economic demand as represented by need for particular kinds of employees strongly influences the recruitment and selection of apprentices. Moreover, the professional associations define the relevant content of the programmes, contribute to the preparation of pedagogical resources, and support the provision of practical training in cross-company courses as well as in ordinary workplaces.

The Swiss VET system has recently undergone important reforms aimed at securing a higher percentage of qualifications at upper-secondary level as well as providing attractive pathways between VET and the tertiary general education system (Dubs, 2006). Nevertheless, the question of the efficiency of the training model remains a constant issue. From an economic perspective, the low level of unemployment amongst Swiss citizens aged under 25 is often seen as evidence that this system has provided a smooth transition into the workforce for students having completed compulsory education. However, some other figures support a more critical understanding of the situation: 70% of Swiss companies do not hire apprentices and do not engage in initial vocational training; 30% of apprentices enrolled in the 'dual' form of apprenticeship do not complete their training programme or drop of the system; and more than 20% of all young people, most of them with migrant background or low literacy and numeracy skills, do not manage to enter upper-secondary education directly (Stalder & Nägele, 2009). In

recurrent discussion about these matters, two central issues have emerged: the conditions under which learners can access the vocational system, and the quality of training provided in such a model. In what follows, we give a more detailed overview of these two challenges.

The first problem often experienced by young people in a market-driven VET system is the difficulty of access to the apprenticeship programme. The source of such difficulties is far more complex than an insufficient supply of apprenticeship positions made available by companies. Instead, it is the recurrent mismatch between the training occupations sought by potential apprentices, and the apprenticeship positions offered by the various sectors of the economy (Dubs, 2006). The domains that provide the most apprenticeship positions, for instance the machine or building industry, tend to be perceived as less attractive by students, whereas highly preferred occupations (e.g., computer specialist, graphic designer) are not available in sufficient places to satisfy candidates' preferences. Indeed, the poor engagement of some occupational groups in the initial VET system has remained a particular and critical issue in Switzerland for the last few years. There are numerous reasons for such a limited offering of apprenticeships. These include the financial costs and administrative obligations for training companies when hiring apprentices (Wolter & Schweri, 2003; Wolter, Mühlemann, & Schweri, 2003) and a growing mismatch between the requirements of the training programmes and those of the production needs of most companies. Whereas the proposed curricula tend to avoid overspecialisation and develop broad professional skills, training companies see their activity scope becoming more and more specialised, which may limit opportunities for learning in an initial vocational training perspective.

The second problem that has attracted continued attention over the years is the quality of the training itself. In some professional trades, over 60% of apprentices fail at their intermediary or final federal exams. Here again, a variety of reasons are put forward to explain such an evolution. Training companies tend to assign the responsibility for such a bad performance to the specific school profile of apprentices and their poor achievement and learning potential. As a matter of fact, tracking between VET and general education at upper-secondary level is to a large extent determined by schooling results; the students with lower records being naturally oriented towards the vocational pathway. But this selection process is not the only reason why so many apprentices drop out of the system. Training companies are sometimes also seen as playing an active role in the difficulties encountered by apprentices. Some companies do not provide sufficient support to apprentices; some see them exclusively as a way to hire a cheap workforce. Moreover, administratively, the cantons are responsible for tracking and avoiding such abuses, but this supervision often turns out to be insufficient and ineffective (Schneider et al., 2005). Furthermore, the vocational schools themselves are sometimes criticised for their insufficient cooperation with professional associations, reinforcing the gap between what is taught in vocational schools and

what is required for the workplace rather than developing continuities between these learning sites.

These issues have long challenged practitioners involved in the initial VET system. They have also prompted new research questions for academics in the domain of VET. Indeed, in the late 1990s, when the Swiss government embarked on a major reform of the VET system, it turned out that there was very little empirical evidence grounded on research methodologies that could help inform these reforms. At that time, the domain of VET research appeared as insufficiently developed, focused on a limited range of thematic issues and methodologies, and not sufficiently coordinated amongst the various institutions carrying out research in VET (Kiener, 1999). Since then, an active policy has been established, aimed at reinforcing the domain of VET research within the Swiss academic system and encouraging interdisciplinarity and collaboration between research institutions. Research priorities have been identified (i.e., teaching and learning, the use of technologies, the role of social norms in VET, the quality of VET, etc.), with the hope that the development of these research fields will profitably support systemic innovation and enable an evidence-based monitoring of the VET system in the future.¹⁵

9.3 Researching the Field of Vocational Learning and Language-in-Interaction

The research programme conducted at the University of Geneva since 2005 is being enacted together with two colleagues, Ingrid de Saint-Georges and Barbara Duc (Filliettaz, de Saint-Georges, & Duc, 2008). The programme is part of a collective effort aimed at building a strong VET research capacity in Switzerland and increasing our empirical and theoretical knowledge about teaching and learning in a workplace context. This research programme focuses on language-in-interaction in vocational learning and proposes to identify close and fruitful connections between issues raised in the field of initial VET and methodological resources developed in the area of applied linguistics. The overall purpose of our research programme is to contribute to a more informed understanding of the real conditions in which training and learning occur within the Swiss 'dual' VET system. The research adopts interrelated and complementary perspectives on vocational training. The first perspective focuses on apprentices and the cognitive and social learning processes in which they engage. The second perspective focuses on the skills and competencies developed by trainers and teachers, namely the professionals who engage with apprentices in various training sites. In the

¹⁵ Additional information regarding the research policy conducted by the Swiss Office for Professional Education and Technologies (OPET) can be found on the following webpage:

<http://www.bbt.admin.ch/themen/berufsbildung/00405/index.html?lang=en>.

'dual' system, these trainers can belong to various professional communities. Some of them are professional and well trained vocational teachers working in vocational schools. Others are skilled professionals with little pedagogical background working in companies. Finally, we focus on the perspective of the 'dual' model itself and seek to identify the complementarities and boundaries between the various training practices combined in this type of programme.

Obviously, these issues refer to a broad research field, but the procedures we apply and develop in order to address these issues appear as considerably more specific. Our approach to understanding teaching and learning in vocational training can be described as *situated*, *interactional*, and *comparative*. Because these terms bear specific meanings and have strong methodological consequences, they deserve further comments and clarifications.

First, we take an action-oriented approach to learning environments. Consistent with a situated perspective on cognition (Lave, 1988; Lave & Wenger, 1991), we consider that learning cannot be seen as an abstract and decontextualised cognitive process. Instead, it appears as profoundly embedded in social action as it occurs in specific cultural and material environments. This perspective has important consequences regarding the selection of methodology and procedures for data collection and analyses. In our perspective, special attention has been paid to ordinary work and training practices as they unfold in naturally occurring conditions. We have conducted ethnographic field work, spending considerable time with apprentices and vocational trainers in various contexts, taking notes based on observation, and making audio-video recordings of specific tasks when possible.

These observed actions are of interest because they are often accomplished collectively and distributed amongst a plurality of participants. From that standpoint, they belong to what can be referred to as an *interaction*, namely 'all which occurs throughout any one occasion when a given set of individuals are in one another's continuous presence' (Goffman, 1959, p. 26). Because most teaching and training practices can be seen as interactions, we hypothesise that there exist fruitful connections between issues related to vocational learning and disciplines devoted to the understanding of 'the interactional order' and its linguistic organisation. This is the reason why we borrow concepts and analytical categories initially elaborated in various domains of linguistics, such as conversation analysis (Sacks, Schegloff, & Jefferson, 1978), interactional sociolinguistics (Gumperz, 1982), and multimodal discourse or interaction analysis (Scollon, 2001; LeVine & Scollon, 2004; Norris, 2004). These various disciplines have developed distinct approaches to discourse and interaction, but they also share some common assumptions about language and social life. In particular, they can be seen as fruitful resources for our purpose. This is because they view language not only as way of sharing information between speakers and recipients, but as a historical and culturally shaped medium by which social actors take actions, achieve cooperation, participate in social events, align identities, et cetera, by engaging in complex meaning-making process supported by a wide

range of semiotic resources, such as speech, gestures, body motions, gaze, and the handling of objects. This perspective again calls for appropriate and specific methodological requirements regarding data collection and analysis. Consistent with these various approaches focused on language-in-interaction, audio-video recorders were used to collect data in the field, and the recordings were transcribed in a multimodal manner. These data constitute the starting point of a qualitative analysis.

Our approach can be described as comparative because it aims at establishing both continuities and contrasts between various occupations and training contexts. Two sorts of contrasts are of interest here. On the one hand, evidence of any contrasts between three different professional trades related to technical skills is being sought. On the other hand, any contrasts between the various sites and institutions in which training takes place within the ‘dual’ apprenticeship programme are also being sought. Table 9.1 below provides an overview of the data collected for the purpose of this research programme. It shows the different professional trades focused on for this study, the sorts of training settings involved, and the approximate amount of data collected in these various settings. These data consist of video recordings of naturally occurring action involving apprentices and different sorts of trainers in various occupational domains and distinct institutional settings:

Table 9.1 Sources and amount of empirical data collected from 2006 to 2009

Professional trades	Training Settings	Video recordings
Car mechanics	One vocational school	37 hours
	Four different garages	39 hours
Automation specialists	One private training centre	19 hours
	Three companies of the machine industry	20 hours
Electric assemblers	One training centre of a large public company	17 hours
	Two large public companies	25 hours

As presented in Table 9.1, video recordings have been collected in three trades within technical occupations: car-mechanics, automation specialists, and electric assemblers. For each of these occupations, data has been collected in both vocational schools or training centres and training companies and, for each of the settings, a range of situations has been observed: three to four different classes or workshops hosted by vocational schools or training centres; and three to four different training companies for each occupational field considered. In all, about 150 hours of video recordings have been collected, involving about 60 apprentices in 3 different vocational schools or training centres and 9 training companies.

The analysis of these recordings has involved first identifying sequences of interaction conducted by apprentices and professional workers. These sequences of interaction have then been transcribed and constituted the starting point of a

fine-grained description of interactions in these settings. So far, various issues and topics within two broader domains of interest have been investigated.

The first domain of interest has focused on knowledge transmission and transformation. In this area, we have been analysing the ways vocational knowledge and skills are explained, experienced, and acquired in different interactional contexts (de Saint-Georges & Filliettaz, 2008). The second broad domain of investigation is related to the notions of transition and identity construction. Here, we have been interested in exploring the relations between participation in interaction and professional socialisation. In particular, we have described how experts shape the nature and degree by which apprentices engage in productive tasks and how such forms of participation create opportunities for developing professional identities. Consistent with these investigations, contrasted forms of guidance have been identified in the various training companies observed (Duc, 2008; Filliettaz, 2008; Filliettaz, de Saint-Georges, & Duc, 2009). It is precisely this issue of guidance in the workplace that has been found to be worthy of more detailed attention and is the focus of the following paragraphs.

9.4 An Interactional Approach to Guidance in the Workplace

In the field of research devoted to workplace learning, it has been recurrently argued that direct and indirect forms of guidance provided by experienced workers constitute important conditions for the learning potentialities of specific work environments. Workers do not always learn on their own and just by completing activities and tasks. They can do so only when specific resources are being afforded to them. As Billett (2001) puts it, ‘the quality of direct interaction accessible in a workplace is a key determinant in the quality of learning outcomes. This extends to the availability of this guidance, the willingness of individuals to assist others and the skills experienced coworkers have in sharing this knowledge’ (p. 35). When reflecting on the specific resources afforded by workplaces, Billett makes a distinction between what he calls *direct* and *indirect* guidance. Indirect guidance is defined as physical arrangements or various symbolic resources accessible through observation within professional environments. As for direct guidance, it refers to close interactions involving skilled and experienced coworkers. Various resources may be engaged in close guidance. As shown by Billett (2001), *questioning dialogues*, *diagrams*, and *models* or *analogies* improve the learning outcomes associated with guidance in the workplace.

In the francophone field of ‘vocational didactics’ (Pastré, Mayen, & Vergnaud, 2006), complementary and significant contributions to the topic of guidance and workplace learning have been proposed recently. In a research programme devoted to apprenticeship in the field of car-mechanics in France, Kunégel (2005) has stressed the configuring role of supervisors and trainers in the ways apprentices gain access to vocational knowledge and build up their professional

expertise. He proposes a diachronic model of guidance and training, in which apprentices and trainers play various successive roles, associated with specific interactional patterns. In the first period of an apprenticeship programme, apprentices become familiar with the workplace context and often have no direct access to productive tasks. In a second stage, they receive extensive instruction in the form of organised sequences of explanations. Later, they are progressively put to work and gain autonomy in their practice with occasional help from their trainers. Distinct forms of dialogues between experts and novices occur at these various stages. It seems that small talk or brief verbal exchanges characterise the initial period during which apprentices become familiar with the physical and social context of the workplace. Extended forms of questioning dialogues mediate the instruction phase; and later, request for assistance sequences take place once apprentices have a direct access to productive tasks.

Our research programme builds upon these research findings, which elaborate the configuring role of the 'other' in practice-based learning and illuminate some of the semiotic resources engaged in workplace learning. We propose to elaborate these ideas by investigating how discourse and verbal interaction contribute to the achievement of close guidance during ordinary workplace activities. In other words, we propose to see guidance not only as an abstract concept engaged in the construction of expertise and professional socialisation, but as an interactional joint construction, mediated by language use and other semiotic modes and accomplished by participants incrementally in the various workplace activities and interactions in which they participate. Approaching guidance as an interactional accomplishment leads to the following research questions: (i) How do trainers and apprentices accomplish guidance in the workplace and what are the interactional properties of guidance in such contexts? (ii) How do we identify and define various forms of guidance at work and what sorts of semiotic resources are used by participants in these various forms? (iii) What are the potential outcomes of these various forms and properties of guidance both on a cognitive level and on a social one? (iv) What do apprentices learn through guidance and how may it contribute to the development of professional identities?

We have approached the empirical material collected in the context of training companies guided by these questions. A careful analysis of our data has led us to identify four distinct interactional configurations through which guidance progresses in the workplace: as spontaneously provided, explicitly requested, collectively distributed, or implicitly denied. *Spontaneous guidance* arises when support is initiated and provided by trainers or expert coworkers. *Requested guidance* refers to contexts in which apprentices seek assistance and initiate help-request sequences in order to carry on working. *Distributed guidance* refers to interactions where more than one expert coworker engages in the process of providing instruction or assistance to the apprentice. *Denied guidance* arises when experts or trainers resist or refuse to provide requested assistance to apprentices. In what follows, a case study based on observations and audio-video recordings of an apprentice in the automation trade in one particular training company in the

Geneva area provides empirical evidence for these distinct forms of guidance. The apprentice observed here is an 18-year-old apprentice called Rodney (ROD), who commenced his training programme within this company a few weeks before the recordings took place. Rodney presents a rather typical profile of the population that gets enrolled in these sorts of apprenticeship programmes in Geneva. He is not a native French speaker, having immigrated to Switzerland during lower-secondary school. As a consequence, he encountered some difficulties during his schooling and ended his compulsory education with poor achievements in both literacy and numeracy. His school performance channelled him directly into the initial VET system and he made the choice of becoming an automation specialist after having tried various other occupations. The training company that hired Rodney as an apprentice is a small business that specialises in the construction of electronic boards for the building industry. The typical tasks accomplished by automation specialists in this context involve mounting and connecting various kinds of electric modules (terminals, electric breakers, meters, etc.) on metallic structures before installing them in various buildings under construction. Within the company, Rodney is under the supervision of Fernando (FER), his official trainer. As is usually the case, Fernando is not dedicated exclusively to the instruction and supervision of apprentices. He is also the manager of an important workshop within the company and is in charge of productive tasks as well as other employees. Other colleagues are also working in the same environment as Rodney, but they have no official training responsibility for apprentices. The training model followed by this company is strongly practice-based and considers that apprentices should learn by being assigned productive tasks from the very beginning of their apprenticeship programme. This means that Rodney has not been given any period of observation during which he could become familiar with the context of production; instead he assists expert workers in their ordinary tasks. So, he was immediately put to work with the expectation that he would perform productive tasks.

The excerpts of data presented and analysed below refer to various tasks conducted by Rodney when assembling one of his first electric boards. When the observations began, Rodney had already completed most of the mounting procedure. He had installed various modules on the chassis and finished wiring these modules according to an electric installation plan. In what follows, four short excerpts of data have been selected to show how Rodney deals with various tasks related to the construction of this electric board, and how he seeks and sometimes receives guidance from his trainer and other coworkers. These transcribed sequences of interaction will provide an illustration and a fine-grained analysis of the four different forms of guidance identified in our data so far.

9.4.1 Spontaneous Guidance

One way for trainers to accomplish close guidance at work is to provide support spontaneously to apprentices. This type of spontaneous guidance can be observed and illustrated in the example below. At this point of the task, Rodney has completed the wiring of his electric board and has inserted it into a metallic casing. Fernando, his trainer, works in the same workshop, just in front of him. In the transcribed excerpt, Fernando spontaneously interrupts Rodney's work to provide specific instructions.

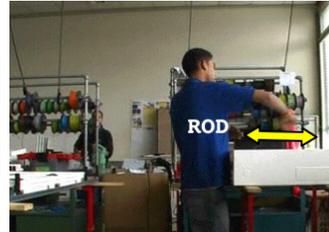
- (1) you call me before you start (226, 01'35 – 02'04)¹⁶
- 01'35 1 ((*ROD and FER are working individually on their own tasks*)) [#1]
- 01'40 2 ROD: ((*ROD is handling the cover and installing it in the electric casing*))
- 01'49 3 FER: ((*FER gazes at ROD*)) [#2]
- 4 ROD: ((*ROD continues to cover the casing*))
- 01'55 5 FER: for the engraving when you engrave the strips/ . you should do it vertically\
6 ROD: vertically/ like that OK ((*ROD draws a vertical line with his hand*)) [#3]
- 7 FER: you call me before you start so that you don't make any mistakes\
02'04 8 ROD: right\
9 ((*continues to adjust the cover in the electric casing*))



#1: ROD and FER are engaged in individual tasks



#2: FER gazes at ROD when he handles the cover



#3: ROD draws a vertical line when saying 'vertically like that'

Fig. 9.1 Spontaneous guidance

In the sequence of action, successive participation configurations take place and are sequentially performed by ROD and FER as they engage in work. In the

¹⁶ The transcripts have been translated from French. Conventions and symbols used in the transcripts are listed and explained at the end of this chapter.

first two lines of the transcript, individual actions take place in two distinct areas of the workshop. As indicated by their body postures (#1), both the apprentice and his trainer orient their attention to individual tasks, without engaging in verbal communication. There is no close interaction going on at this point. But obviously, these two distinct areas of the workshop are not perceptually dissociated from each other. ROD's work station is visually accessible to the trainer, who provides constant indirect supervision of his action. For instance, in line 3, he reacts to ROD's handling of the cover by gazing at him. Shortly after that, he comes closer to ROD and initiates a verbal exchange by performing a directive speech act: 'for the engraving when you engrave the strips you should do it vertically' (l. 5). In doing so, he anticipates the next step of the mounting procedure: Once electric boards have been wired and covered, plastic strips must be engraved and stuck on the cover to indicate the various electric components included in the board. In this particular case, these plastic stickers must be engraved vertically and not horizontally. In line 6, ROD ratifies the initiation of this verbal exchange ('vertically like that OK'). Interestingly, he completes his rephrasing of FER's instruction by performing a gesture in which he gives an iconic representation of the vertical line (#3).

This first excerpt of data reveals interesting properties of guidance in the workplace. First, it shows that in some cases, guidance can be interactionally initiated by experts without any explicit question or request from the part of the apprentice. Second, it underlines the fact that guidance is not only accomplished through speech, but arises from a fine-grained combination of various semiotic modes. In the example presented above, interaction commences with sharing acoustic and visual affordances and is then performed by participants using various sorts of resources. It is the visual contact with ROD's action that determines the timing of FER's advice; and it is an iconic gesture performed by ROD that helps him express the concept of 'verticality' in this material context. Finally, we see here that the kind of guidance spontaneously provided by the trainer consists in anticipating future steps of the unfolding task. Indeed, it is the handling of the cover that indicates to FER that ROD has completed the mounting of the electric board and that he is approaching the time when he will have to engrave the plastic strips. But it is not only the next step of a routine task that is being anticipated here. As seen in the transcript, FER initiates a second short verbal exchange with the apprentice, asking to let him know when he will engage in the engraving process: 'you call me before you start so that you don't make any mistakes' (l. 7). In doing so, he is not only anticipating a future episode of the task, but he is also indicating the complexity of this task and the difficulties ROD may encounter when engaging in it. In other words, he is projecting a specific symbolic image of the apprentice, an image of somebody who will probably do things wrongly if he is not properly guided.

9.4.2 Requested Guidance

Sequences of spontaneous guidance are quite rare in the data considered in our analysis. Most of the time, guidance is not initiated by trainers but explicitly requested by apprentices when they face difficulties in conducting their work. The second excerpt, exemplifying these requested forms of guidance, takes place a few minutes after the first one, precisely when ROD engages in the engraving process. In order to prepare the vertical plastic strips, ROD has to run a special program on a computer located in a room next to the workshop. This software enables the editing of the text and numbers that will be engraved on the strips. It is the second time ROD has used this software. But despite the notes he took in his handbook the first time he completed the task, he encounters difficulties and is unable to complete the procedure on his own. He then has to seek help from his trainer.

(2) are you on the phone? (227, 02'25 – 04'14)

02'25 1 ROD: it's really slow/ [#1]
 02'29 2 ((goes back to the workshop))
 3 ROD > FER: er on the computer I've typed the whole thing/ and
 I'm I'm on er
 4 are you on the phone/ [#2]
 5 FER: no/
 6 ROD: oh I thought you were on the phone\
 7 and it says «Number N-B/ . layer/ . terminal/ layer/ . er:
 2» . shall I delete it and put 1/
 8 FER: ((carries on working))
 9 ROD: because you said that I should pay attention to layers\
 10 and on the lower part of the screen it says er «N-B/
 layer/»
 03'02 11 FER: OK I'm coming\ ((joins ROD in the computer room))
 03'18 12 ((ROD sits down in front of the computer))
 13 ROD: «N-B layer» ((points to the message on the screen))
 14 FER: how many layers did you create altogether\ ..
 how many lines/
 15 ROD: lines/ er:. four\
 03'29 16 FER: ((takes control of the mouse and clicks)) [#3]
 yes only one so you've removed the others right/
 17 ROD: yes there is only one left/
 18 FER: XXXX more
 19 ROD: oh there is a problem here/
 03'43 20 FER: ((goes on clicking the mouse))
 21 you do it again right . do it again\
 22 ROD: vertical\
 23 FER: ((goes on manipulating the mouse))
 03'55 24 what's this mess\ . oh that was before/
 25 ROD: I did this before I pressed 'delete' but it didn't work\

26 FER: right you must create one single layer right it's fine if
 you need only one line/ but if you need more lines/
 then you need to create the same number of layers\
 27 ROD: OK
 04' 14 28 FER: ((leaves the computer room))



#1: ROD tries to run the computer and says 'it's really slow'



#2: ROD goes back to the workshop and addresses FER 'are you on the phone?'



#3: FER joins ROD in the computer room and takes control of the mouse

Fig. 9.2 Requested guidance

At the beginning of this sequence of work, ROD is conducting the engraving procedure by engaging in an individual form of action (#1). He mutters comments to himself, complaining about the slowness of the computer ('it's really slow,' l. 1). Then, suddenly, he faces difficulties with the software as he does not know how to set the various parameters related to the editing of the numbers he wants to engrave on the plastic strip. He leaves the computer room, walks back to the workshop (#2) and addresses FER directly ('er on the computer I've typed the whole thing and I'm I'm on er,' l. 3). In doing so, he faces two kinds of issues.

The first issue lies in the fact that his trainer does not seem to display immediate availability or willingness to engage in guidance. His reaction leads ROD to infer that FER is engaged in a phone call as evidenced by ROD's conversational insert expansion ('are you on the phone/,' l. 4), completed by FER ('no,' l. 5), and concluded by a justification provided by the apprentice ('oh I thought you were on the phone,' l. 6). Later, after the completion of ROD's request for help, FER carries on working silently without responding explicitly to ROD's question ('shall I delete it and put 1/,' l. 7).

The second issue faced by the apprentice lies in the necessity to provide a verbal account of the problem. Since the computer is located in another area of the workspace and is not visually accessible to the trainer, ROD has to elaborate a linguistic representation of the action he is undertaking. Doing this seems challenging for him, as indicated by the successive attempts he makes as the interaction unfolds: 'er on the computer I've typed the whole thing and I'm I'm on er' (l. 3), 'and it says Number N-B layer terminal layer er 2 . shall I delete it and

put 1/' (l. 7), 'because you said that I should pay attention to layers\ and on the lower part of the screen it says er N-B layer' (l. 9-10). These explanations do not seem to be clear enough for enabling FER to solve the problem from his workspace. He finally acknowledges ROD's request for help by announcing that he is about to come and assist him ('OK I'm coming,' l. 11).

When FER finally joins ROD in the computer room (#3), a sequence of so-called close guidance (Billett, 2001) starts, in which FER very quickly takes control of the situation. It is FER who enters commands into the computer (l. 16), questioning the apprentice about the kind of procedure he has conducted so far ('how many layers did you create altogether how many lines/, l. 14; 'so you've removed the others right/, l. 16), and making comments about what has been done ('what's this mess\ . oh that was before/, l. 24). In the end, he solves the problem but provides very little explanations about how to cope with the software: 'right you must create one single layer right it's fine if you need only one line/ but if you need more lines then you need to create the same number of layers' (l. 26). In other words, FER is not really guiding the apprentice in carrying out his work at this stage. Rather, he is taking control of ROD's activity, solving the problem on the computer, but without using the situation as an opportunity for the apprentice to engage in a better understanding of the editing process. As a consequence, ROD's level of participation decreases as the interaction progresses. He is still sitting in front of the computer, but he is no longer actively engaged in completing the engraving procedure.

In sum, this second excerpt demonstrates additional properties of guidance in practice-based learning. First, it shows that guidance is not only spontaneously offered by experts but may also be initiated and requested by learners themselves. Secondly, it shows that help-request strategies are not immediate realities but take the form of dynamic sequences of actions, progressively elaborated by participants by using a variety of distinct semiotic modes. In the sequence analysed above, the request for help starts with a shift in space, develops with the initiation of a verbal exchange and unfolds with the progressive establishment of visual contact between ROD and his trainer. It is only after the completion of more than 8 action turns that FER finally ratifies ROD's request and provides an explicit form of guidance. We see here that the provision of guidance raises a key issue about the kinds and quality of participation and engagement from the perspective of experts. In particular, providing assistance to learners in the workplace is often associated with a temporary interruption of other tasks in which experts are engaged. In other words, these interactions force experts to cope with different kinds of actions at the same time that may conflict with their own priorities and interests.

9.4.3 Distributed Guidance

It is precisely because guidance takes time and that this time is not always available for expert workers that various forms of cooperation to satisfy apprentices' requests for guidance can be observed amongst experts. It is such a case of collective distribution of guidance amongst a number of workers that occurs in this third excerpt, which takes place a couple of minutes after the previous one. After FER has left the computer room, ROD tries to complete the editing procedure on his own. But again, he is faced with the same kind of problem and is unable to proceed with the editing software. So he goes back to the workshop, where his trainer is engaged in a discussion with Julian (JUL), one of his colleagues.

(3) I have a problem it doesn't work (227, 11'20 – 12'30)

11'20 1 ROD: *((ROD leaves the computer room and goes to the workshop))* [#1]

11'27 2 ROD > FER: I have a problem/ . it doesn't work\
 11'30 3 FER: of course it doesn't work\ . it can only function\
 11'35 4 FER > JUL: you go JUL I've had enough
 5 JUL > ROD: what's the problem now\
 6 ROD: are those the T-shirts/
 7 JUL: yes these are the T-shirts\ *((comes with ROD in the computer room))* [#2]

11'43 8 JUL: and what's your problem then/
 9 ROD: it doesn't work\
 11'48 10 JUL: what's the problem/ . what doesn't work what's-
 11 ROD: I don't know it says this all the time\
 12 *((ROD and JUL stand in front of the screen))* [#3]
 11'53 13 JUL: but- *((starts typing on the keyboard))*
 12'01 14 it's like last time\ . you have too many layers\ . you have to delete them\ . you see/
 15 ROD: oh I always forget that
 16 JUL: yes oh yes I know/ er because this is the second time I've had to come here/
 17 and why didn't you do it all at the same time/
 12'13 18 ROD: because there are some EFI breakers here/ and I don't know how to deal with that/
 19 JUL: right but 8 – 9– 10 what's that/
 20 ROD: 8 – 9 – 10 come before the EFI breakers\
 12'23 21 JUL: right I'll explain this to you another time\ *((leaves the computer room))*



#1: ROD goes back to the workshop



#2: JUL comes with ROD in the computer room



#3: JUL joins ROD in the computer room

Fig. 9.3 Distributed guidance

As in excerpt 2, this sequence of interaction starts with a help request initiated by the apprentice ('I have a problem it doesn't work,' l. 2). But this time, the type of reaction provided by the trainer in response to that implicit request is much more 'face threatening' in Goffmanian terms (Goffman, 1959). In a first turn, FER replies with anger to ROD, reminding him that he is using inappropriate vocabulary for describing the problem: The computer cannot 'work'; it can only 'function.'¹⁷ In a second turn, he initiates another exchange addressed to his colleague Julian and asks him to respond to the apprentice ('you go JUL I've had enough,' l. 4). These negative and face-threatening responses are not only provided by the trainer. They are also evident in JUL's attitude towards ROD, as attested by his recurrent questioning focused on the nature of the encountered problem ('what's the problem now,' l. 5; 'and what's your problem then,' l. 8; 'what's the problem what doesn't work,' l. 10).

When the two participants finally congregate in the computer room, the material environment provides visual affordance and assistance to ROD's explanation of the problem ('I don't know it says this all the time,' l. 11). But here again, it is JUL who immediately takes control of the mouse (l. 13) and carries out the editing procedure. He draws ROD's attention to the fact that he is facing the same problem as before ('it's like last time you have too many layers you have to delete them you see,' l. 14) and that it is the second time he has to come over here to fix the same problem ('yes oh yes I know er because this is the second time I've had to come here,' l. 16). JUL then continues to question the apprentice about the strange way he numbers the stickers ('and why didn't you do it all at the same time/,' l. 17; 'right but 8-9-10 what's that/,' l. 19). Obviously upset by ROD's incomplete answers ('I don't know how to deal with that,' l. 18), he leaves the

¹⁷ In fact, FER is playing with words here, the French verb 'marcher' being able to mean both 'walking' and 'functioning.' A literal translation of FER's response would be something like 'of course the computer cannot *walk*, it can only *function*.'

computer room without giving any more explanation and postponing additional explanation to an unclear future: ‘right I’ll explain this to you another time’ (l. 21).

This third excerpt brings a new perspective on guidance in the workplace. First, it shows that guidance is not provided exclusively by official trainers or supervisors in that context. It can also be provided by coworkers present in the same workplace environment. In this case, for instance, an explicit process of collective distribution of the guidance responsibility involves both the official trainer and another experienced colleague. Secondly, it is noteworthy that forms of guidance appear as social practices in the sense that they seem to be shared and reproduced amongst experts belonging to the same work community. The way JUL engages with the apprentice is very similar to the method used by FER in excerpt 2. Both display annoyance when they are disturbed from their ordinary tasks. Both also appear to have clear expectations regarding the linguistic adequacy of ROD’s engagement in interaction, specifically regarding the way he provides verbal accounts of the problem he is facing. Finally, both conceive their contribution to ROD’s work as a local solution of the problem rather than an opportunity for him to engage in learning. These unfulfilled expectations and recurrent requests initiate a kind of vicious circle that has strong consequences at an interpersonal level and on the way ROD is seen by the professional community to which he is trying to belong. The fact that guidance brings very little input in terms of instruction and learning maintains and increases ROD’s dependence and need for assistance. At the same time, ROD’s lack of autonomy progressively affects the willingness of experts to provide guidance. These conditions lead to a rapid ‘marginalisation’ (Wenger, 1998) of the apprentice and are probably highly counterproductive in terms of professional socialisation and identity construction.

9.4.4 Denied Guidance

In some of the excerpts analysed, experts were found to refrain from providing guidance spontaneously or willingly. In some other cases, they do not provide guidance at all or actively refuse to do so. This fourth response we term *denied guidance*. There are instances approaching this type of interactional accomplishment of guidance in our data, and we give an illustration of it in this fourth excerpt. ROD has finished engraving the plastic strips and is about to stick them on the cover of his electric board when suddenly it falls down from the trestle table on which it was lying and the metallic structure drops out from the casing. At the beginning of this sequence, ROD is busily trying to insert the chassis into the casing again, checks if nothing is broken, and screws the chassis inside the casing.

(4) oh no no it’s fine (226, 39’15 – 40’20)

39’15 1 ROD: ((ROD inserts the chassis into the casing after it fell down from the trestle)) [#1]

- 39'21 2 right the wire here/ . I hope it's not broken\
 3 ((ROD switches on the interruptors))
 4 FER: ((FER looks over at ROD)) [#2]
 5 ROD: ((ROD turns around the electric board))
 39'37 6 ROD > FER: er:/ Fernando/
 7 FER: ((ironically)) er:/ Rodney/ ..
 8 ROD: oh no no it's fine\ it's fine\
 9 FER: are you sure/
 10 ROD: yeah\
 39'47 11 ((ROD is busy trying to retrieve a screw that has fallen
 into the electric casing))
 40'03 12 ROD: it's hot in here\
 13 ((screws the chassis into the electric casing)) [#3]
 40'20 14 ROD: yeah I made it\ .. first go\



#1: ROD inserts the chassis into the casing after it fell down from the trestle

#2: FER looks over at ROD

#3: ROD screws the chassis into the electric casing

Fig. 9.4 Denied guidance.

At the beginning of this excerpt, ROD engages in an individual form of work. He inserts the metallic chassis containing the electric modules into the casing and checks that nothing is broken (#1). However, he does not just 'do' so but reports on the issues he is facing in a self-addressed comment muttered to himself: 'right the wire here I hope it's not broken' (l. 2). These self-addressed comments catch FER's attention and afford another instance of his visual control over the situation, as indicated by FER's gaze at ROD on line 4 (#2). As soon as ROD feels that his trainer is looking at him, he turns around the board and addresses FER directly: 'er Fernando/' (l. 6). From a conversational perspective, this form of address can be described as the initiation of a pre-sequence (Schegloff, 2007). It is not meant as a request as such but as a preparation for it in which participants negotiate readiness to engage in a more developed form of exchange. Quite interestingly however, FER does not provide a preferred form of response to the pair's first turn. Instead of acknowledging ROD, he echoes his address in a sarcastic fashion: 'er Rodney/' (l.7). In doing so, he publically displays a form of unwillingness to engage in

guidance, aborting the help-request in the preliminary stage of its sequential accomplishment. This implicit denial has serious consequences for the global unfolding of the verbal exchange. In the next turn, ROD decides not to carry on the help-request sequence he had initiated and takes back his question ('oh no no it's fine its fine,' l. 8), even after FER's repair attempt ('are you sure/,' l. 9).

These recurrent forms of denied guidance displayed by the experts progressively transform the ways the apprentice engages with his work environment. For instance, in the second half of excerpt 4, ROD provides different sorts of verbal actions. He makes comments regarding the temperature in the workshop ('it's hot in here,' l. 12) and expresses his satisfaction when he succeeds in screwing the chassis into the casing ('yeah I made it\ first go,' l. 14). These verbal actions can be seen as hybrid forms of talk. Like other instances of self-talk, they can be interpreted as personal expressions of feelings addressed to the speaker himself. But given that they are performed much more loudly and distinctly than other instances of self-talk, they are also probably oriented towards other colleagues sharing the work environment and provide a public account of the task in progress. As a consequence, the level of interactivity decreases as explicit instances of dialogue become less frequent, and are progressively replaced by public forms of monologues. These indirect and hybrid forms of address show how difficult it becomes for ROD to engage explicitly with his colleagues in a context where criticism, blame and sarcasm are used as responses to his help-request strategies. They also provide empirical evidence of the forms of marginalisation going on in this particular work context.

9.5 Concluding Remarks and Practical Implications

In this chapter, different forms of guidance have been described on the basis of various interactional patterns that occur in ordinary work situations. This empirical approach has helped to identify recurrent properties of guidance that is provided in practice-based training conditions. More specifically, our analysis shows that guidance is more than a static and immediate reality accomplished exclusively through linguistic means. Instead, it comprises a dynamic process, sequentially and collectively constructed by a range of social participants, and resulting from a combination of semiotic resources such as speech, gaze, gesture, body orientation or material objects bearing specific meaning in the context in which they are being used. The interactional conditions in which participants accomplish guidance at work are closely associated with the learning opportunities afforded by work environments. In the data considered here, poor conceptual content was provided by experts as they engaged with the apprentice. Thus, the kind of responses they proposed to his questions and help-requests obviously affected the conditions in which he could develop autonomy and self-confidence and be legitimated in his new professional identity (Wenger, 1998).

If taken literally, this type of analysis could establish a rather pessimistic view on guidance at work and also provide a very negative image of initial VET in Switzerland, which is obviously not the case and not a point made here. There are a number of other examples in our data, which we analysed and reported elsewhere (Duc, 2008; Filliettaz, de Saint-Georges & Duc, 2009), that illuminate and elaborate productive ways of guiding apprentices in a number of contexts, including professional trades workplaces. This evidence shows that the issues raised by practice-based learning in professional contexts remain highly complex. An empirical and interactional perspective such as the one adopted here could address these complexities in at least three different ways.

The first practical contribution is related to the variety of ways guidance may be provided (or not) to apprentices depending on the contexts in which they are trained. In our inquiry about vocational learning in the Swiss 'dual' VET system, we observed workplaces where spontaneous forms of guidance were much more frequent than in others, or where vocational trainers responded easily and willingly to help requests (Duc, 2008). In contrast, we also observed companies in which denied forms of guidance constituted the dominant interactional pattern and in which workers competed for expertise and for becoming a legitimate trainer (Filliettaz, 2009). This raises important issues both at political and ethical levels. Apprentices are not treated equally in the companies for whom they work. Moreover, the conditions afforded to apprentices may differ considerably from one context to another. This high degree of contextual variation certainly constitutes an important challenge for practice-based models of learning as it considerably weakens its overall efficiency.

Secondly, the kind of data we have collected and briefly analysed here demonstrates some of the contradictions faced by apprentices regarding guidance in the workplace. On the one hand, they are being put to work with the instruction to 'ask for help' if they encounter difficulties but, on the other hand, as we saw here, the conditions in which these questions and help-requests are being responded to by experts are often contested and may endanger their legitimate participation in professional communities.

Such verbal accounts illustrate both the dualities and the tensions that arise between what Billett (2008, 2009) has termed *workplace affordances* and *individual engagement*. On the one hand, workplace practices may afford a wide range of resources for learning, including expertise and available guidance. On the other hand, though, workers seem to have clear expectations regarding the ways learners should engage with these particular affordances. Assistance may be available in the workplace, but not all the time. Asking questions may be possible, but not repeatedly. Problems may be encountered, but apprentices should be able to report on them adequately. This finding stresses another important issue of practice-based learning in the workplace, namely the fact that its efficiency relies not only on the availability of specific resources and on the willingness of experts to share them with learners. More than these, this efficiency also depends on the

ways learners engage with these resources and on the social expectations that shape these forms of engagement.

Consistent with this last point, our approach finally emphasises the social nature of practice-based learning and the configuring role of trainers in the process of building up expertise. Apprentices do not learn effectively by just engaging in work. They do so when they are able to accomplish successful forms of interactions with colleagues, trainers or teachers. How experts become efficient trainers and provide guidance adequately remains an open question. Some feel immediately very at ease with this role, others do not. Obviously, practice-based VET systems could gain in quality by developing specific training programmes preparing expert workers to assist apprentices adequately. There is an ongoing debate in Switzerland about this issue. Should vocational trainers undergo more pedagogical training than what is now required? What kind of curriculum and training programmes should be available for them? In consonance with some previous work conducted in the field of workplace learning (Billett, 2001), our own investigations show that it is crucially important to increase the level of pedagogical qualification of trainers in the workplace to enhance the overall quality of the guidance provided in training companies. It is only when these conditions exist that practice-based learning models can develop their efficacy. Using ethnographic interactional analysis certainly does not solve this complex problem. However, it can generate interesting pedagogical perspectives about how to prepare vocational trainers by using complex and naturally occurring data, and not, as is often the case, by transmitting decontextualised content and making general claims about efficient instruction in the workplace.

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Transcription conventions

(.) or (..) = pause

(a:) = vowel lengthening

(-) = interrupted segment

(/) = rising tone

(\) = falling tone

(CAPitals) = accentuated segment

(>) = address to a specific recipient (ROD > FER)

((*action, movement or gesture*)) = non-verbal behaviour or comment

(XX) = unintelligible segment

underlined segment = overlapping speech

underlined...segment = speech overlapping with non-verbal behaviour