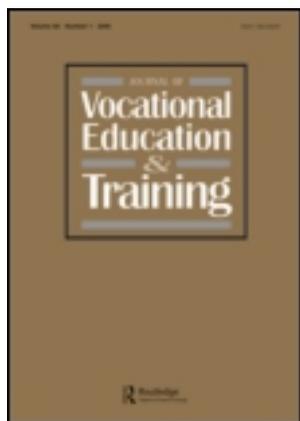


This article was downloaded by: [Laurent Filliettaz]

On: 03 September 2011, At: 01:17

Publisher: Routledge

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



Journal of Vocational Education & Training

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/rjve20>

Collective guidance at work: a resource for apprentices?

Laurent Filliettaz ^a

^a Faculty of Psychology and Educational Sciences, University of Geneva, Geneva, Switzerland

Available online: 02 Sep 2011

To cite this article: Laurent Filliettaz (2011): Collective guidance at work: a resource for apprentices?, *Journal of Vocational Education & Training*, 63:3, 485-504

To link to this article: <http://dx.doi.org/10.1080/13636820.2011.580359>

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: <http://www.tandfonline.com/page/terms-and-conditions>

This article may be used for research, teaching and private study purposes. Any substantial or systematic reproduction, re-distribution, re-selling, loan, sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

Collective guidance at work: a resource for apprentices?

Laurent Filliettaz*

Faculty of Psychology and Educational Sciences, University of Geneva, Geneva, Switzerland

(Received 17 August 2010; final version received 8 April 2011)

This article focuses on pedagogical aspects of initial vocational training in the context of the Swiss VET system. Even though apprentices are usually the responsibility of one main supervisor within companies, a number of other colleagues, experts and fellow apprentices interact with them as they engage in productive tasks. In that context, the article examines how first-year apprentices are guided and supported by experienced workers in the workplace, and how this guidance and support are distributed collectively in work teams. Drawing on an ethnographic and discursive methodology borrowing concepts and tools from various trends in applied linguistics, the article analyses empirical material consisting of videotaped interactions between apprentices and workers recorded in productive conditions. Two case studies related to distinct workplaces are discussed. They illustrate contrasting conditions experienced by apprentices when joining the workplace and provide evidence for the configuring role of guidance and supervision in vocational learning. The findings suggest that particular attention should be given to the pedagogical quality of guidance in the workplace to improve the overall efficiency of the dual apprenticeship system and to foster smooth and consistent transitions into work experience for novice apprentices.

Keywords: apprenticeship; guidance; verbal interaction; workplace learning participation

Apprenticeship in the Swiss VET system

Switzerland, like other European countries such as Germany and Austria, has a long-standing tradition of initial vocational education and training (VET) based on apprenticeship programs. According to the most recent figures available (Federal Office for Professional Education and Technology 2010), more than 60% of youth completing compulsory education at lower secondary level in Switzerland go on to enrol in the VET system and only one third go on to specialise in general education at upper-secondary and tertiary levels. Amongst the 82000 students who commenced vocational training in 2008, 80% enrolled in apprenticeship programmes, and only 20% opted for school-based vocational training. This means that apprenticeship training, in what is called the ‘dual system,’ still remains the predominant form of upper secondary education in Switzerland. More than 200 career choices are currently available through such programmes.

*Email: laurent.filliettaz@unige.ch

The dominant training model is called ‘dual’ because it comprises a combination of multiple training sites, associated with a plurality of partners, together with college-based learning. Apprentices are trained in productive conditions by working in a company for 3 to 4 days a week. They undergo complementary teaching sessions in vocational colleges for 1 to 2 days a week. And finally, they attend so-called cross-company courses hosted by professional associations at various stages of their training programmes with the aim of learning complementary knowledge that is difficult to secure in the productive conditions of everyday work. Such a dual training model is rooted in a close and long-standing cooperation between representatives of the economic system (professional associations, companies) and government at both federal and state levels. While government policies are responsible for monitoring the qualification framework and for developing the overall quality of the training system at national level and within cantons, stakeholders from various industries also make a significant contribution to the implemented training programmes. For instance, economic demand as represented by the need for employees in particular sectors strongly influences the recruitment and selection of apprentices. Moreover, 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.

Since the late 1990s, the Swiss VET system has undergone important reforms aimed at securing the award of more qualifications at upper-secondary level as well as providing attractive pathways between VET and the tertiary general education system (Dubs 2006; Stalder and Nägele 2011). This was achieved mainly by the introduction of a ‘professional baccalaureate’ and by the decision to convert higher specialised vocational schools into universities of applied sciences delivering vocational bachelors and master’s degrees. In addition, new sectors such as social care have recently become accessible through apprenticeship programmes. Finally, new sorts of qualifications for low-skilled apprentices have been introduced, in order to provide less demanding training pathways to young people who could not fulfil the expectations and requirements related to traditional VET certificates. These recent reforms have expanded access to training programmes and qualifications, widened the scope of occupations accessible through initial VET programmes and fostered attractive and coherent pathways from upper secondary VET qualifications to tertiary education.

Although apprenticeship programmes within the dual system have recurrently been reported as efficient strategies for securing employment and supporting smooth transitions from school to work, significant problems have emerged in these programmes during the last few years (Dubs 2006; Gonnon 2005). According to a recent longitudinal survey conducted between 2000 and 2007 (Stalder and Nägele 2011; Stalder 2008), the first problem often experienced by youth in a market-driven VET system is the delayed access to upper secondary education. More than 20% of all young people completing compulsory school do not manage to directly enter upper secondary education. Candidates with a migrant background are also significantly more often enrolled in ‘bridging courses’ before moving into apprenticeship programmes. The reasons for this lie in a tendency for the economy to provide insufficient apprenticeship positions and to supply limited training opportunities in the occupations in which young people wish to be trained. Despite a strong apprenticeship tradition, only 30% of Swiss firms hire apprentices, and emerging occupational sectors such as services or technology are often unfamiliar

with the requirements and specificities of apprenticeship programmes, and do not participate strongly. Moreover, since the mid-1980s, the number of apprenticeship contracts concluded in Switzerland has progressively decreased, whereas, at the same time and for demographical reasons, the number of school-leavers has continually risen (Sager 2008). Consequently, repeated political efforts have been made to convince businesses to create new apprenticeships and hence increase the number of apprenticeships available on the market (Wolter and Schweri 2002; Wolter, Mühlemann, and Schweri 2003).

The second problem that has attracted increasing attention in recent years is the high level of non-completion, dropout and change in apprenticeship pathways. Depending on the occupations and the geographical areas, between 20% and 40% of apprentices, who enter the dual VET system, do not complete their apprenticeship within the stated terms of their contracts (Stalder and Nägele 2011). A survey conducted between 2000 and 2003 indicates that overall, 9% change occupation, 11% have to repeat a year, 7% change the training company, and 7% drop out from the apprenticeship system without having any immediate alternative pathway. Given these circumstances, it has become crucial to gain a better understanding of the causes leading to young people dropping out or making changes in apprenticeship programmes. Recent research conducted in this area (Lamamra and Masdonati 2009; Jordan, Lamamra, and Masdonati 2009) has, for instance, investigated the reasons given by apprentices who had interrupted their apprenticeship. Conducted from a qualitative perspective and based on semi-structured interviews, this study concludes that poor working conditions, low support by trainers and workplace relations emerge as the main reasons that apprentices give for dropping out. Half of the apprentices interviewed reported conflict in their relations with colleagues or supervisors and complained about insufficient training opportunities in the workplace.

These observations and research findings 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. Given these circumstances, it becomes vital to reflect not only on the 'causes,' 'reasons' and 'factors' that may lead to incomplete training pathways or delayed transitions to employment, but to understand the *processes* by which these causes and factors are being enacted in practice, how attrition is constructed in action, and how apprentices, trainers and workers are experiencing relational and practical issues when engaging with work. This requires a comprehensive explanation of the complex mechanisms by which apprentices learn through work (Fuller and Unwin 1998; Guile and Young 1998; Billett 2001) as well as a better empirical knowledge about the actual conditions they face in the various contexts in which they are trained. Regarding the particular case of Switzerland, insufficient empirical evidence is currently available regarding training and learning practices as they take place in workplace settings. Thus, increased knowledge in this area is needed to address the challenges faced by the dual VET system and to improve the overall quality of apprenticeship programmes in the future.

In a recently initiated research programme conducted at the University of Geneva (Filliettaz, de Saint-Georges, and Duc 2008), these issues have been addressed by developing and promoting innovative methodologies borrowed from various trends in applied linguistics. Analysing discourse and verbal interaction among apprentices, trainers and workers, it is proposed, can contribute to a better understanding of the complex learning processes associated with transitions from

school to work and illuminate some of the multiple challenges faced by apprentices at the beginning of their training programmes.

In this article, the main objectives, methodological orientations and preliminary findings of the research programme are discussed and the potential and limitations of on-the-job training in VET are critically appraised. The article commences with a brief overview of the literature devoted to the role of guidance in workplace learning. Drawing from various theoretical perspectives, including socio-cultural psychology, anthropology and vocational education research, the study summarizes and discusses contributions from experienced workers to workplace learning. An interactional and discursive perspective on guidance is then proposed as a way to understand more fully how apprentices are guided at work and the type of learning that may arise from this guidance. These theoretical and methodological assumptions are illustrated with empirical data documenting naturally occurring interactions between first-year apprentices and vocational trainers in work-related tasks. Two case studies referring to distinct workplaces depict contrasting conditions experienced by apprentices in their early days of work and provide evidence for the configuring role of guidance and interaction in vocational learning. In a concluding section, the potentialities and limitations of a collective distribution of guidance are summed up and theoretical, methodological as well as practical implications resulting from the proposed approach are discussed.

Researching guidance as an interactional accomplishment

Social theories of learning have recurrently underlined the collective and distributed nature of learning processes and the configuring role of ‘the other’ in the ways individuals access and interiorize knowledge and develop skills. The Vygotskian concept of the zone of proximal development (ZPD) defined as ‘the distance between the actual development level as determined by independent problem solving and the level of potential development as determined through problem solving under adult *guidance* or in collaboration with more able peers’ (Vygotsky 1978, 85) is often regarded as a central reference point for approaches that see learning processes as involving a plurality of agents. From such a Vygotskian perspective, it is assumed that psychological development does not consist of a process of individual and biological maturation but involves close interactions with the cultural environment and with more experienced individuals. Guidance, in this framework, appears as an important condition for expanding the ZPD and for developing problem-solving skills.

By positioning the concepts of guidance and the ZPD beyond the limits of the classroom, contemporary approaches to vocational learning have promoted new ways of understanding the relations between work and learning. In this respect, convincing alternatives to the distinction between formal and informal education have been advanced (Fuller and Unwin 1998; Guile and Young 1998; Billett 2001; Evans et al. 2006). In Lave and Wenger’s anthropological approach to apprenticeship (Lave and Wenger 1991; Wenger 1998), guidance is seen as an important means by which experienced workers assist newcomers in their ordinary tasks and shape the ways they participate in collective practices. Under such guidance, learning is not exclusively about the acquisition of expertise and practical intelligence, but also comprises a process of identity transformation. That is, under specific conditions, newcomers are progressively recognised as members of communities of practice as they move from peripheral to full participation.

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 learn on their own or just by completing activities and tasks. They can do so only when specific resources are 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 co-workers have in sharing this knowledge’ (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. Direct guidance refers to close interactions involving skilled and experienced co-workers. Various resources may be engaged in close guidance. As shown by Billett (2001), *questioning dialogues*, *diagrams*, and *models* or *analogies* seem to improve the learning outcomes associated with guidance in the workplace.

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

It should not be inferred from these claims that the existence of expertise in the workplace and the availability of guidance constitute sufficient conditions for newcomers to learn from practice. As emphasized by Billett (2001), the pedagogical qualities of the provision of guidance may deeply affect the learning opportunities afforded by the workplace, as well as the ways learners elect to engage with these resources depending on their personal beliefs, biographies and prior knowledge (Billett and Pavlova 2005). Moreover, as pointed out by Fuller and Unwin (2003), workplaces may be seen as *expansive* or *restrictive* learning environments depending on their strengths or weaknesses regarding a wide range of institutional, contextual and personal dimensions. From that standpoint, the ways experienced workers engage with apprentices may either support gradual transitions to full participation and recognise newcomers as legitimate learners or, on the contrary, reflect more ambivalent institutional arrangements where apprentices have limited opportunities to learn and to experience progressive identity transformations.

The body of research referred to above has emphasized the socio-cultural nature of vocational learning and the configuring role of experts in learning at work. To some extent, the approaches briefly summarized here have also highlighted the importance of semiotic resources involved in these learning processes. However, in spite of local exceptions (Collin and Valleala 2005), the role of language, discourse and interaction in the provision of guidance at work has not yet been systematically investigated or seen as a key determinant for understanding how learning environments support or hinder learning opportunities for apprentices. Yet, the complex processes that shape learning through practice are very much premised on language

use and communication. Training and learning occur in ordinary activities, in which individuals, for example, provide or receive instructions, share views, solve problems, display interpretations or evaluations of others conducts. In other words, learning to work and becoming a member of professional communities very much rely on discourse and interactions. Consequently, guidance should not only be seen as an abstract concept engaged in the construction of expertise and professional socialisation, but rather as an interactional joint construction, mediated by language use and other semiotic modes. Approaching guidance as an interactional accomplishment leads to the following research questions: (1) How do trainers and apprentices accomplish guidance in the workplace and what are the interactional properties of guidance in such contexts?; (2) What are the potential outcomes of these interactional properties of guidance both on a cognitive level and on a social one?; and (3) What do apprentices learn through guidance and how may it contribute to the development of professional identities?

These are some of the issues that have been investigated in the research programme referred to above (Filliettaz, de Saint-Georges, and Duc 2008), the primary concern of which has been to explore fruitful connections between issues related to vocational learning and disciplines devoted to the understanding of 'the interactional order' (Goffman 1959) and its linguistic organisation.

The methodology selected for this study draws upon concepts and analytic categories originating from various fields of linguistics, such as conversation analysis (Sacks, Schegloff, and Jefferson 1978; Schegloff 2007), interactional sociolinguistics (Gumperz 1982) and multimodal discourse analysis (Kress et al. 2001; Levine and Scollon 2004). These approaches view language not only as a way of transferring information from speakers to recipients, but as an historical and culturally shaped medium through which individuals take actions, achieve cooperation, align identities, and participate in social events.

Consistent with this broad discursive and interactional perspective, specific kinds of data were collected for this research programme. Data collection was conducted in the form of ethnographic observations of a cohort of approximately 40 apprentices engaged in three different technical trades: (1) car mechanics; (2) industrial automation; and (3) electrical assembly. Observations took place from September 2005 to June 2009 in naturally occurring training conditions in the Geneva area. With the consent of participants, observations were video recorded by the researchers. The complete data set comprises 150 hours of audio-video recordings collected in one vocational school, two training centres and seven different workplaces. These recordings document sequences of everyday training and work activities in which apprentices interact with a variety of experts, ranging from vocational teachers, dedicated trainers and experienced co-workers.

These data and methodological perspectives have been used so far to investigate various issues and topics within broader domains of interest in initial VET research.¹ In particular, fine-grained interactional patterns mediating the provision of guidance in the workplace have been identified and illustrated empirically (Filliettaz 2010a, forthcoming). A classification has been introduced to distinguish situations where guidance is spontaneously provided by trainers (*spontaneous guidance*) from situations where apprentices take the initiative to elicit specific information for support from more experienced workers (*requested guidance*). In addition, situations where trainers resist engaging in guidance and display unwillingness to assist apprentices have also been described, referred to as the cate-

gory of *denied guidance*. Finally, in a variety of distinct workplaces, it has been observed that even though apprentices are under the responsibility of one main supervisor, a number of other colleagues, experts, or fellow apprentices interact with them as they engage in productive tasks. These later configurations have been referred to as *distributed guidance*.

In this article, I wish to elaborate on this final category and illustrate the wide range of interactional processes by which a collective distribution of guidance may be enacted in work-related contexts. The questions I propose to address are the following: (1) What kinds of guidance do apprentices receive from the various categories of workers they interact with?; (2) What sorts of learning opportunities arise in these forms of guidance?; (3) How do apprentices cope with the contradictions that might arise from this distributed nature of guidance at work?; and (4) In what ways do these distributed forms of guidance constitute opportunities or obstacles for learning and professional socialisation? These questions appear as important issues for understanding the pedagogical qualities of workplaces as learning environments. They will be investigated in the following section by presenting and analysing empirical material collected during ethnographic observations in the various training sites.

Two contrasted case studies

The two case studies presented in the following sections refer to training practices that share some common features. Both situations have been observed in workplaces where apprentices encounter real production conditions. Although belonging to different industries (car mechanics and industrial automation) and presenting distinct organisational properties (a public utility and a private small sized business), both observed workplaces are related to technical occupations and hired apprentices attending a dual apprenticeship programme in technical trades. Moreover, both apprentices observed in the case studies are first-year apprentices, observed during the first two months of their practical training in the workplace. Finally, the two cases analysed below involve a form of collaborative distribution of guidance and illustrate the wide range of interlocutors with whom apprentices may interact at work.

However, the point to be made here is that despite general contextual similarities, the two cases discussed illustrate contrasting forms of learning experiences at work. The ways apprentices are expected to participate in work-related tasks as well as the pedagogical qualities of the guidance they get from trainers or other experienced workers differ quite substantially and deserve close attention. A detailed analysis conducted from a fine-grained interactional perspective will aim at describing the specific interactional dynamics illustrative of these situated work practices and reflecting on the potentialities and limitations associated with these collective forms of guidance at work.

Collective guidance as a resource for participation

The first work and training experience discussed below refers to a dual apprenticeship programme in the field of car mechanics. It involves a first-year apprentice named Michael (MIC), who commenced his apprenticeship a few months before observations took place. Michael is 16-years-old and completed his compulsory education with average to high scores. Although his school results channelled him

into general education pathways, Michael decided to become a car mechanic and elected to engage in a VET programme.

The training company hiring Michael as an apprentice is a large public utility supplying the Geneva area with water, gas and electricity. The company has a large car and lorry fleet to maintain and runs a dedicated repair workshop to deal with the maintenance of these vehicles. A group of 10 skilled mechanics are working for this company, as well as three apprentices. Within the car mechanics workshop in which apprentices undergo the practical part of their training programme, Michael is placed under the responsibility of Larry (LAR), who acts both as vocational trainer and as the chief mechanic of the workshop. Yet, in everyday work situations, apprentices do not work under the exclusive guidance of Larry, who is often busy running the workshop and sometimes attends meetings located in buildings remote from the mechanics' workshop. On numerous occasions, Michael's work is supervised by other members of staff, who are experienced mechanics but who do not have official training responsibilities towards apprentices. In this particular company, participation increasing in small increments over a period of time is favoured, in which apprentices are given some time to become familiar with their new work environment. First-year apprentices are not expected to complete repair tasks on their own but work together with experienced mechanics and help them in their work.

The data supporting this case study were collected during a specific sequence of work, in which Michael was working together with Alex (ALE), an experienced mechanic. Alex had received instruction to fix a problem with the chassis of a car. Noisy vibrations coming from the chassis led to the car being brought to the repair workshop. After lifting the car and examining the chassis, Alex observed that a metal piece supporting the chassis was cracked and needed to be fixed. Two repair strategies were then considered: to replace the broken support with a new one, or to repair the existing support by welding another metal piece into it. Considering that it would take too much time to order a new support, Alex attempted repairing the broken piece. Interestingly, this task gave Alex diverse opportunities to involve Michael in the repair process and to assign progressive responsibilities to the apprentice. In the following paragraphs, I propose to describe and analyse how Michael's participation evolved and how specific guidance strategies afforded opportunities for learning in this particular work environment.

The first brief excerpt relates to a transition point in the repair procedure. Alex and Michael are located in the welding workshop and Alex has just finished repairing the crack by using a welding station (see Figure 1, image #2). The next step of the task involves preparing a small metal piece that will be fixed to the support in order to reinforce the chassis (see Figure 1, image #1).

(1) You prepare metal piece (Film No 30, 12'37 – 13'25)²

1. ALE: I'll go and grind down the weld to smooth it out while you prepare the metal piece\.
2. you could use these pieces of scrap iron\
3. ((*picks up pieces of iron available next to the welding station and hands them over to MIC*))
4. MIC: all right\
5. ALE: first you should prepare a template on a cardboard\ what do you think/
6. MIC: ee: yeah I think I'll draw the shape on a piece of cardboard\



#1: broken support of the chassis after completion of repair



#2: MIC and ALE working together at the welding station

Figure 1.

7. ALE: go and fetch a piece of cardboard over there and draw a circle this size ((*points to the base of the support*))
8. MIC: all right Ill do this\
9. ALE: OK and after we weld these two pieces together OK/
10. MIC: mhm\
11. ALE: and while you do this I grind down the support\

In the sequence of interaction transcribed above, Alex is taking a clear form of leadership in the ongoing repair procedure, but interestingly, he also affords opportunities for the apprentice to participate. In particular, a distributed form of action is initiated in line 1, when Alex assigns to the apprentice the task to mark out and cut the metal piece while Alex grinds down the support and prepares it for the final welding ('I'll go and grind down the weld to smooth it out while you prepare the metal piece,' l. 1; 'OK and after we weld these two pieces together right,' l. 9). Not only does Alex give general instructions to Michael; he also elaborates a detailed procedure regarding how this task may best be carried out and gives indications regarding the material to be used for preparing the metal piece ('you could use these pieces of scrap iron,' l. 2; 'first you should prepare a template on a cardboard,' l. 5; 'go and fetch a piece of cardboard over there and draw a circle this size,' l. 7). Finally, it is noteworthy that systematic feedback is elicited by Alex, who repeatedly invites the apprentice to take part in the verbal exchange ('what do you think/,' l. 5; 'OK/,' l. 9). In such a participation configuration, Michael is expected to express explicit forms of engagement and to ratify instructions provided by Alex ('ee: yeah I think I'll draw the shape on a piece of cardboard,' l. 6; 'all right I'll do this,' l. 8).

After this brief exchange, Michael and Alex relocate to two different areas of the workshop. Alex goes to the grinding machine while the apprentice fetches his toolbox to find a cutter and a piece of cardboard for preparing the template. While stepping out of the welding workshop, Michael encounters Larry, his official supervisor and chief mechanic.

(2) What did he say? (Film No 30, 14'35 – 16'26)

1. LAR: ((*LAR walks towards MIC in the mechanics workshop*))
2. have you removed the support from the chassis/
3. MIC: yes its in the welding station\

4. LAR: in the welding station/ OK lets check this out\
 5. ((*LAR and MIC walk towards the welding workshop*)\
 6. LAR: is someone with you/
 7. MIC: Alex is with me\
 8. LAR: where is he/
 9. ((*sees ALE using the grinding wheel at the other end of the workshop*)\
 10. OK here he is\
 11. MIC: ((*MIC handles the support and shows it to LAR*)) we thought we could fix it by welding a small metal piece on here [#1]
 12. LAR: OK very well/
 13. MIC: OK/
 14. LAR: I like that idea\
 15. MIC: OK\ ((*MIC takes his pencil and draws the shape of the metal piece on a cardboard*)\
 16. LAR: isnt it too hot/
 17. MIC: no\
 18. LAR: be careful not to burn yourself when you do this\
 19. MIC: yeah\
 20. LAR: OK so you stay with ALE and you fix this\
 21. MIC: yes he said that he would stay with me\
 22. LAR: fine so lets go/ ((*leaves MIC and steps back into the mechanics workshop*)\
 23. ALE: ((*ALE comes back and joins MIC in the welding station*))
 24. does he want to change the support/ [#2]
 25. MIC: ((*MIC continues to draw the shape of the piece on the cardboard*)) what/
 26. ALE: does he want to change the whole support or can we fix it like that\
 27. MIC: no no we can fix it like that\
 28. ALE: so we can reinforce the support by adding this piece inside/
 29. MIC: yes I told him that and he said he liked the idea\
 30. ALE: what/
 31. MIC: he said that he liked the idea\
 32. ALE: oh he likes the idea/ great so lets go/

When engaging with the apprentice, Larry exerts a triple form of supervision of Michael's activity. First, he elicits information about the repair process ('have you removed the support from the chassis/,' l. 2) and enquires about the strategy worked out by Michael and Alex ('in the welding station/ OK let's check this out\,' l. 4). Second, he makes sure Michael is not working on his own but under close surveillance from an experienced mechanic ('is someone with you?,' l. 6; 'where is he?,' l. 8). And finally, he provides advice regarding security issues. For instance, when observing that Michael is handling the metal support on the welding station, Larry reminds him to consider that the metal piece might be hot ('be careful not to burn yourself when you do this\,' l. 18). Interestingly, Michael is also placed in an active position in which he is expected to account for the repair strategy and explain how he and Alex plan to solve the problem. He does this by using a 'we' form in which he sees himself as a part of a team: 'we thought we could fix it by welding a small metal piece on here' (l.11) (see Figure 2, image #1). Larry explicitly ratifies this repair strategy ('OK very well,' l. 12; 'I like that idea,' l. 14) and leaves the welding workshop after having confirmed Michael's work plan for the coming few hours ('OK so you stay with Alex and you fix this\,' l. 20).



#1: MIC explains to LAR how he plans to fix the support
 <we thought we could fix it by welding a small metal piece on here>



#2: ALE joins MIC in the welding station and asks
 <does he want to change the support/>

Figure 2.

When Alex comes back to the welding station after cleaning the support, he enquires about Larry's reaction to the repair strategy in progress: 'does he want to change the support?/' (l. 24) (see Figure 2, image #2), 'does he want to change the whole support or can we fix it like that?\' (l. 26), 'so we can reinforce the support by adding this piece inside?/' (l. 28). In such a configuration, Michael is placed in a position to inform Alex about Larry opinion and decision ('no no we can fix it like that\', l. 27; 'yes I told him that and he said he liked the idea\', l. 29). Interestingly, Larry and Alex have no direct contact in this particular situation; the apprentice, who takes on a local role of relay between the mechanic and his chief, mediates their interactions.

The work environment illustrated in this first case appears to afford close and rich forms of guidance to the apprentice. This guidance was collectively distributed amongst a plurality of experienced workers, and relates to different and complementary dimensions of work practices. Alex shaped local opportunities for the apprentice to participate in the repair process and provided detailed instructions regarding a procedure to follow. Larry exerted a global supervision, ratified Michael's work plan, and drew his attention to security issues. Such a collective form of guidance has important implications in terms of participation and membership for the apprentice. It placed Michael in an active role, in which he was progressively given increasing responsibility and was seen as a legitimate partner of a collective work team. From that standpoint, the way information and decisions were shared amongst experts and mediated through the apprentice can be seen as local opportunities for increased participation in the local community of practice. As will be apparent in the second case study, such opportunities and resources are not necessarily observed in other work contexts.

Collective guidance as a contested environment

The second case study refers to a dual apprenticeship programme in the field of industrial automation. It involves a first-year apprentice named Rodney (ROD), who

recently immigrated to Switzerland from the former Portuguese colony of Cape Verde. Rodney was 18-years-old and had encountered significant difficulties during his schooling. He ended compulsory education with poor achievement in both literacy and numeracy. After attending a one-year bridging-course following compulsory school, he finally managed to find an apprenticeship position in the field of industrial automation.

The training company hiring Rodney as an apprentice was a small private business that specializes in the construction of electric boards for the building industry. Within the company, Rodney was under the supervision of Fernando (FER), his vocational trainer. As in the previous case, the trainer was not dedicated exclusively to the instruction of apprentices. He was also manager of one of the workshop and contributed to productive work tasks. Other colleagues are also working in the same environment as Rodney, but they had no official training responsibility for apprentices. In contrast to the car mechanics' workshop described in the first case, the training model followed by this company was strongly oriented by production concerns and considers that apprentices should learn by being assigned productive tasks from the very beginning of their apprenticeship programme. This means that Rodney was not given any period of observation during which he could become familiar with the context of production. Instead, he was immediately put to work and expected to take full responsibility of entire production tasks very quickly.

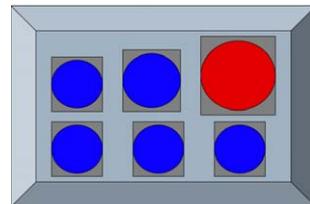
The data supporting this second case study were observed at the very beginning of Rodney's training period in the first-year of his apprenticeship. They were collected during a specific sequence of work in which Rodney was engaged in the assembling of a waterproof electric relay unit (see Figure 3). This task is assigned to him by the production manager. When handing over the material to Rodney, the production manager briefly mentions that this task will probably be a little difficult, but that Rodney should check it out with Fernando, his supervisor. During the following hour, Rodney works alone and tries to figure out how to assemble this complex electric unit. After several unsuccessful attempts, Fernando finally comes and helps Rodney by giving explicit instructions regarding the procedure to follow. He explains that a good way to start is to assemble the inner parts of the electric unit and to fix electric sockets to the grey plastic casing (see circled portion of the unit



#1: waterproof electric relay unit under construction



#2: FER explains to ROD how the electric sockets should be set out on the casing



#3: panoramic view of the casing displaying the alignment of electric sockets

Figure 3.

in Figure 3). Excerpt (3) below transcribes how this sequence of instruction is performed by Fernando and Rodney.

(3) Aligned and sorted (Film 229, 29'25 – 33'10)

1. FER: ((*FER empties a plastic bag containing electric sockets*))
2. you have to fix these sockets on here\ [#2]
3. ROD: oh/ so should I make holes in the casing?/
4. FER: of course you have to do so\ how do you want to fix the sockets if you dont make holes in it?/
5. ROD: OK\
6. FER: pass me the other sockets please\
7. ROD: ((*ROD takes the sockets lying on his work bench and hands them over to FER*))
8. FER: so now look carefully\
9. you put the big red one here/ ((*handles the red socket and positions it on the plastic casing*))
10. this one here/ and this one here\ ((*handles two blue sockets and positions them next to the red one*))
11. ROD: OK\
12. FER: and then the three other small blue ones here\ ((*displays the blue sockets in a line*))
13. ROD: OK\
14. FER: they must be aligned OK/
15. ROD: aligned OK\
16. FER: and they must be sorted from the small ones to the bigger ones\ ((*points with his finger to the sockets on the casing*))
17. ROD: OK\
18. FER: so aligned and sorted all right/
19. ROD: mmmm\
20. FER: you know how to do it dont you?/
21. ROD: I will do it\

In this particular sequence of interaction, Fernando assists the apprentice by circumscribing a limited portion of the task and by providing instructions for arranging and fixing the electric sockets on the plastic casing ('you have to fix these sockets on here\,' l. 2; 'you put the big red one here\,' l. 9; 'this one here/ and this one here\,' l. 10; 'and then the three other small blue ones here\,' l. 12). Two complementary properties are pointed out in his explanations: the fact that the sockets should be properly aligned ('they must be aligned OK?/,' l. 14), and the fact that they should be sorted in a specific order ('and they must be sorted from the small ones to the bigger ones\,' l. 16). Interestingly, these instructions are not delivered exclusively in the form of linguistic utterances but take the form of complex multimodal arrangements in which a material positioning of the sockets as well as pointing gestures are used as resources for guiding the apprentice in his task. Rodney actively engages in this instructional sequence. He provides feedback to Fernando's explanations ('OK,' l. 5, l. 11, l. 13, l. 17) and also asks questions when thinking about the practical implications of Fernando's instructions: 'oh/ so should I make holes in the casing?/' (l. 3). But in this particular case, Fernando responds with sarcasm, making clear that the answer is self-evident: 'of course you have to do so\ how do you want to fix the sockets if you don't make holes in it?/' (l. 4). Finally, it is noteworthy that contrary to what happened in the first case, Fernando's instructions focus exclusively on the purpose or the final product of the task, without providing much detail about a procedure that would help the apprentice to reach this aim. He briefly questions Rodney about his ability to pro-



#1: MAR provides instructions to ROD

#2: MAR responds to FER 'I teach him my method'

Figure 4.

- 31. MAR > ROD: now cover the box with sticky tape and do the marking with a pencil\ so if you make mistakes you dont need to use alcohol\ right?/
- 32. ROD: OK\
- 33. MAR: you mark it out and once its clean you can make holes\
- 34. ROD: OK\

At the beginning of the sequence transcribed above, Marco enquires about Rodney’s current tasks: ‘what are you doing now?’ (l. 1). This places Rodney in a position to explain the task in progress, which he does by using semiotic resources similar to the ones used previously by his trainer: ‘I have to fix these sockets\, this big one here/ and the three ones like that\’ (l. 2-3); ‘and I need to have the same’ (l. 5). Spontaneously, Marco provides the apprentice with more detailed instructions than the ones delivered by Fernando previously. He shares with Rodney a calculating procedure which involves identifying the exact position of the sockets by calculating the space separating each of the three sockets. As illustrated in Figure 5, the procedure consists in adding the width of all the sockets (‘you add them together,’ l. 10), subtracting the total from the width of the box (‘you subtract that from the

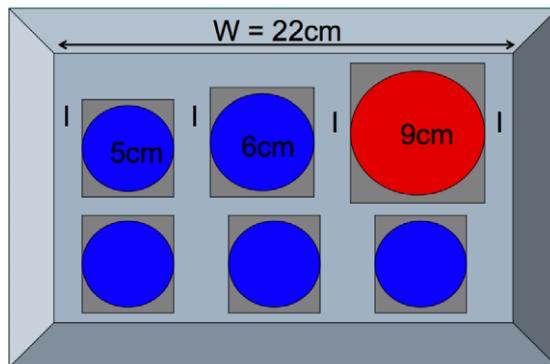


Figure 5. Illustration of Marco’s calculating technique.

total,' l. 12) and dividing the remaining space by the number of spaces, namely four ('then you divide it by the number of spaces,' l. 12).

In this particular case, the plastic cover is 22cm wide, and the width of the added sockets reaches a total of 20cm. Hence, a precise alignment is obtained with a set out including spaces of 0.5cm wide. In addition to this calculating technique, Marco also shares with Rodney techniques for marking out the cover. Rodney is advised to use sticky tape and a pencil, which would avoid applying alcohol to erase the marks in case of mistakes ('for marking you should use sticky tape .. so if you make mistakes there is no problem and you can simply rub it off,' l. 15).

Fernando, the official trainer and Rodney's supervisor, is busy assembling another electric unit, but he overhears Marco's interaction with the apprentice. From line 16 on, he spontaneously joins the interaction, addresses Marco, and proposes an alternative calculating technique for setting out the sockets. This alternative procedure involves identifying the three central points of the sockets by dividing the width of the cover by two, and then dividing each half by two again ('it's much easier if you take half the width and divide it by two,' l. 18), as illustrated in Figure 6.

This alternative calculating procedure is presented by Fernando as easier than the one proposed by Marco. A fictitious example based on a 30cm wide cover illustrates the procedure and reaches the result of 7.5cm: 'for instance 30 centimetres minus 15 centimetres divided by 2 that's 7.5 centimetres and then you've got your three central points' (l. 19). But Marco criticises this alternative technique by reminding Fernando that the sockets composing the first line have different sizes and that Fernando's technique only works when sockets of similar size are to be aligned ('no here the width of each socket is different,' l. 20; 'they don't have the same size,' l. 22). He argues that his own technique is more robust and applies for any kind of electric unit, independently of the number and sizes of the sockets to be fixed ('with my method he can make 10 or 20 sockets\'. plus one and he gets the number of spaces\,' l. 26; 'he measures the width of the box/ any kind of task it's not only for this time\'. even if it's a big unit,' l. 27).

At this stage, a form of controversy emerges between the two experienced electricians, a controversy that involves not only specific procedural knowledge and numeracy skills, but also issues of legitimacy for providing guidance and instructions to the apprentice: Fernando argues that 'he has already explained to him' (l. 25) how to proceed, whereas Marco proposes to 'teach him his method' (l. 17), a 'method that always works and not only for this time' (l. 29). Rodney does not take an active role

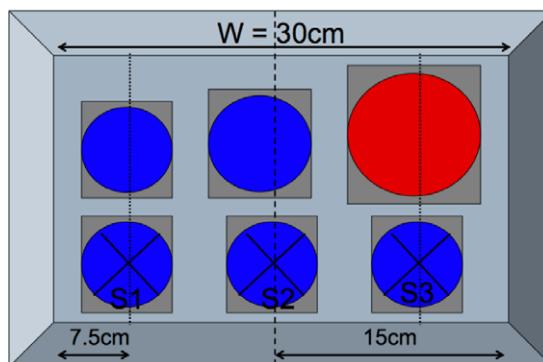


Figure 6. Illustration of Fernando's alternative calculating technique.

in the unfolding of this controversy between experts. He tries to contribute to the exchange by providing support to Marco's arguments ('they aren't the same,' 1. 21), but his turn at talk is not ratified by Fernando. Moreover, interestingly, both Fernando and Marco constantly refer to the apprentice at the third person ('he') and do not address him directly when negotiating which calculating technique to apply.

The work environment specific to this second case study afforded rather different learning opportunities from the ones observed in the previous case. Although collectively distributed across various experienced workers, the forms of guidance provided appeared as misaligned and competitive rather than collaborative and oriented towards learning purposes. Interestingly, rich learning opportunities could have emerged from this work situation, had the controversy between experts been further elaborated and discussed together with the apprentice. But in the whole of the interaction, as already noted, not much space was left for Rodney to reflect about the potentialities and limitations of each of the proposed techniques. Moreover, the interactional dynamics specific to this second case placed the apprentice in a very uncomfortable position in terms of participation and membership. Not only was he placed in a position of observing a controversy between his colleagues, but this controversy also included a conflict of loyalty. By electing to follow instructions from another colleague, Rodney ran the risk of encountering tensions with his own trainer and supervisor in the future. In other words, power issues between experienced workers may affect not only the climate of the workplace but also the learning opportunities that may arise from work-productive tasks. In this case, these power issues can be seen as limitations for the recognition of the apprentice as a legitimate learner within this work team.

Conclusions and practical implications

The two case studies briefly analysed in this article illustrate the configuring role of guidance for apprenticeship learning. They stress the collective and distributed nature of this guidance and the role of experienced workers in assisting novice apprentices in problem-solving tasks. This range of 'guidance providers' goes far beyond official trainers and supervisors. It comprises a wide scope of workmates who may share their work environment with apprentices, on a regular basis or on an occasional one. As illustrated by the empirical analysis, the pedagogical qualities of these distributed forms of guidance may vary quite substantially. In some cases, they take the form of complementarities and continuities across evolving steps of work tasks. In other circumstances, they consist of misalignments or controversies between competing workers. Such a collective distribution of guidance may afford rich opportunities for learning. As seen in the data, it may bring to the awareness of apprentices a wider range of conceptual, procedural and dispositional knowledge related to the tasks at hand. But conversely, it may also lead to confusion when discrepancies emerge between experts or when important dimensions of the tasks remain implicit. The pedagogical qualities of guidance in the workplace also have important social implications regarding the positioning of apprentices in the communities they encounter in the workplace. As shown in the case studies, contrasted forms of participation configurations can be experienced through collective guidance across contexts. These can lead to increased participation and to the recognition of the apprentice as a legitimate member of the work team. But these can also sometimes marginalize the role of apprentices and leave them unprepared for

coping with the complex and dynamic body of knowledge underlying professional communities.

It appears that it is not so much the distributed nature of guidance itself that should be seen as a resource or a limit for participation in apprenticeship training. Rather, it is the conditions in which these distributions are enacted in specific contexts that shape the potentialities or limitations associated with collective guidance. Interactional approaches to workplace learning provide adequate methodological tools for understanding the fine-grained contextual arrangements that compose workplace environments. These approaches reveal the sequential and semiotic mechanisms by which trainers or experienced workers are 'doing guidance' and afford opportunities for participation, knowledge acquisition and identity construction. They also show how apprentices elect to engage with the resources afforded to them and the reciprocal nature of these social and personal dimensions of workplace learning (Billett 2009). Hence, applying a discursive and interactional lens on vocational learning may help us to understand not only *why* but most importantly *how* workplaces can become expansive or restrictive learning environments for apprentices.

This empirical and methodological approach has important practical implications for reflecting on the effectiveness and efficiency of the dual apprenticeship system as it is implemented in Switzerland. It illustrates how workplaces provide potentially rich learning environments for apprentices, but how these potentialities may be enacted differently depending on the awareness and skills experienced workers have for sharing their knowledge and shaping opportunities for apprentices to participate adequately in productive tasks. In consonance with previous studies devoted to workplace learning and the pedagogy for practice (Billett 2001), research results presented here show a need to increase the level of pedagogical qualification and awareness of vocational trainers to enhance the overall quality of the guidance provided in the workplace. This relates to ongoing debates and contested issues in the Swiss VET context. Vocational trainers who are acting as occasional supervisors for apprentices in the workplace context are invited to go through short-term training sessions in which they are given some basic information about apprenticeship programmes and expected training conditions in the workplace. But these sessions are mainly based on recommendations or rules to follow and do not focus on pedagogical issues. Moreover, industries are often reluctant to spend additional time and financial resources on training vocational trainers. From that standpoint, applying a discursive and interactional lens to empirical data certainly does not solve the complex issue challenging the dual apprenticeship system for the future. However, it can make visible the sorts of difficulties faced by apprentices when joining the workplace and it can also help trainers and experienced workers to become more reflexive about their role in assisting these apprentices to accomplish consistent transitions into their working lives.

Acknowledgements

The study presented in this article is related to a research programme sponsored by the Swiss National Science Foundation (SNF), under project numbers PP001-106603 and PP00P1-124650. This article was written during an academic stay at Griffith University, School of Education and Professional Studies, Brisbane, Australia. The author would like to thank Prof. Dr. Stephen Billett for his academic support and for useful suggestions made about a first draft of this article. He is also grateful to Jill Ryan for her precious editing work.

Notes

1. For an overview in English, see Filliettaz, de Saint-Georges, and Duc (2010), Filliettaz (2010b) and de Saint-Georges and Filliettaz (2008).
2. Transcripts have been translated from French to English. Transcription conventions are listed in the Appendix.

References

- Billett, S. 2001. *Learning in the workplace: Strategies for effective practice*. Crows Nest: Allen and Unwin.
- Billett, S. 2009. Workplace participatory practices: The dualities constituting learning through work. In *Travail et formation des adultes* [Work and adult education], ed. M. Durand and L. Filliettaz, 37–63. Paris: Presses Universitaires de France.
- Billett, S., and Pavlova, M. 2005. Learning through working life: Self and individuals' agentic action. *Journal of Lifelong Education* 93, no. 4: 195–211.
- Collin, K., and U.M. Valleala. 2005. Interaction among employees: How does learning take place in the social communities of the workplace and how might such learning be supervised? *Journal of Education and Work* 18, no. 4: 401–20.
- Dubs, R. 2006. *An appraisal of the Swiss vocational education and training system*. Bern: HEP Verlag.
- Evans, K., P. Hodgkinson, H. Rainbird, and L. Unwin. 2006. *Improving workplace learning*. London: Sage.
- Federal Office for Professional Education and Technology (OPET). 2010. Vocational and professional education and training in Switzerland. Facts and figures. Swiss Confederation: Federal Department of Economic Affairs. <http://www.bbt.admin.ch/themen/berufsbildung/index.html?lang=en>.
- Filliettaz, L. 2010a. Guidance as an interactional accomplishment: Practice-based learning within the Swiss VET system. In *Learning through practice: Models, traditions, orientations and approaches*, ed. S. Billett, 156–79. Dordrecht: Springer.
- Filliettaz, L. 2010b. Dropping out of apprenticeship programs: Evidence from the Swiss vocational education system and methodological perspectives for research. *International Journal of Training Research* 8, no. 2: 141–53.
- Filliettaz, L. Forthcoming. Asking questions. . . getting answers: A sociopragmatic approach to vocational training interactions. *Pragmatics and Society* 2, no. 2.
- Filliettaz, L., I. de Saint-Georges, and B. Duc. 2008. “*Vos mains sont Intelligentes !*”: *Interactions en formation professionnelle initiale* [“Your hands are intelligent!”: Interactions in initial vocational training]. Geneva: Cahiers de la Section des Sciences de l’Education.
- Filliettaz, L., I. de Saint-Georges, and B. Duc. 2010. Skiing, cheese fondue and Swiss watches: Analogical discourse in vocational training interactions. *Vocations & Learning* 3, no. 2: 117–40.
- Fuller, A., and L. Unwin. 1998. Reconceptualising apprenticeship: Exploring the relationship between work and learning. *Journal of Vocational Education and Training* 50, no. 2: 153–73.
- Fuller, A., and L. Unwin. 2003. Learning as apprentices in the contemporary UK workplace: Creating and managing expansive and restrictive participation. *Journal of Education and Work* 16, no. 4: 407–26.
- Goffman, E. 1959. *The presentation of self in everyday life*. New York: Doubleday.
- Gonnon, P. 2005. Challenges in the Swiss vocational education and training system. *bwp@7*. http://www.bwpat.de/7eu/gonnon_ch_bwpat7.shtml.
- Guile, D., and M. Young. 1998. Apprenticeship as a conceptual basis for a social theory of learning. *Journal of Vocational Education and Training* 50, no. 2: 173–93.
- Gumperz, J. 1982. *Discourse strategies*. Cambridge: Cambridge University Press.
- Jordan, M., N. Lamamra, and J. Masdonati. 2009. Dropout rates in vocational education and training: A failure of the school-to-work transition? In *Innovative apprenticeships: Promoting successful school-to-work transitions*, ed. F. Rauner, E. Smith, U. Hauschildt, and H. Zelloth, 57–61. Berlin: LIT Verlag.

- Kress, G., J. Carey, J. Ogborn, and C. Tsatsarelis. 2001. *Multimodal teaching and learning: The rhetorics of the science classroom*. London: Continuum.
- Kunégel, P. 2005. L'apprentissage en entreprise: L'activité de médiation des tuteurs [Learning in the workplace: The mediating action of tutors]. *Education Permanente* [Continuing Education] 165: 127–38.
- Lamamra, N., and J. Masdonati. 2009. *Arrêter une formation professionnelle: Mots et maux d'apprenti-e-s* [Dropping out of vocational training: an apprentices' perspective]. Lausanne: Antipodes.
- Lave, J., and E. Wenger. 1991. *Situated learning: Legitimate peripheral participation*. Cambridge: Cambridge University Press.
- Levine, P., and R. Scollon. 2004. *Discourse and technology: Multimodal discourse analysis*. Washington, DC: Georgetown University Press.
- Pastré, P., P. Mayen, and G. Vergnaud. 2006. La didactique professionnelle [Professional didactics]. *Revue Française de Pédagogie* [French Journal of Pedagogy] 154: 145–98.
- Sacks, H., E. Schegloff, and G. Jefferson. 1978. A simplest systematics of the organization of turn taking for conversation. In *Studies in the organization of conversational interaction*, ed. J. Schenkein, 7–55. New York: Academic Press.
- Sager, F. 2008. Securing the long-term bases of the dual system: A realistic evaluation of apprenticeship marketing in Switzerland. *Journal of Vocational Education and Training* 60, no. 3: 327–41.
- de Saint-Georges, I., and L. Filliettaz. 2008. Situated trajectories of learning in vocational training interactions. *European Journal of Psychology of Education* 23, no. 2: 213–33.
- Schegloff, E. 2007. *Sequence organization in interaction: A primer in conversation analysis*. Cambridge: Cambridge University Press.
- Stalder, B.E. 2008. Staying, changing or leaving? Predictors of educational change and dropout from apprenticeships. Paper presented at the European Conference of Educational Research, September 9–12, in Göteborg, Sweden.
- Stalder, B.E., and C. Nägele. 2011. Vocational education and training in Switzerland: Organisation, development and challenges for the future. In *Youth transitions in Switzerland: Results from the TREE panel study*, ed. M.M. Bergman, S. Hupka-Brunner, A. Keller, T. Meyer, and B.E. Stalder, 18–39. Zürich: Seismo.
- Vygotsky, L. 1978. *Mind in society: The development of higher psychological processes*. Cambridge: Harvard University Press.
- Wenger, E. 1998. *Communities of practice: Learning, meaning and identity*. Cambridge: Cambridge University Press.
- Wolter, S.C., S. Mühlemann, and J. Schweri. 2003. *Why some firms train apprentices and many others do not*. IZA Discussion Paper No. 916. Bonn: IZA.
- Wolter, S.C., and J. Schweri. 2002. The cost and benefit of apprenticeship training: The Swiss case. *Applied Economics Quarterly (Konjunkturpolitik)* 48, no. 3–4: 347–67.

Appendix

Transcript conventions

CAP	accented segments
/	raising intonation
\	falling intonation
XX	uninterpretable segments
(hesitation)	uncertain sequence of transcription
:	lengthened syllable
.	pause lasting less than one second
..	pause lasting between one and two seconds
>	addressor–addressee relation (FER > MAR)
??	unidentifiable speaker
<u>Underlined</u>	overlapping talk
((comments))	comments regarding non verbal behaviour
[#1]	reference to the numbered illustration in the transcript