Journal of Workplace Learning

Learning the discourse of quality assurance: A case of workplace learning in online in-service training

Mona Lundin Johan Lundin

Received 28 May 2015
Revised 22 January 2016
Accepted 2 February 2016

Learning the discourse of quality assurance

A case of workplace learning in online in-service training

Mona Lundin and Johan Lundin
University of Gothenburg, Gothenburg, Sweden

Abstract

Purpose – In this study, online in-service training for people employed in the food production industry is scrutinized. The purpose of this study is to analyse how the participants adapt to such online environments in terms of the kind of discussions they establish. The more specific interest relates to how the participants discuss current work experiences in relation to the contents of quality assurance they are expected to learn.

Design/methodology/approach – The data analyzed are Web discussions in forms of chat log files from ten courses.

Findings – The results show that, on the one hand, general principles have to be substantiated in the form of concrete examples to actually function as principles and, on the other hand, concrete examples are made interesting only if they have a bearing on a more general issue. Another interesting finding is that the course participants gradually take over the vocabulary of quality assurance; they more frequently write about their work in terms of, e.g. criteria, relevance, estimations and hazards. The conclusion is that Web discussions as part of in-service training constitute a new arena for reflection in and on practice.

Originality/value – This is interesting to explore, as it is designed to meet the needs of employers and employees to learn the new set of rules and procedures, which regulate the European food industry. In this respect, the training activities are of direct relevance to daily work practices. Simultaneously, online environments seem to offer flexibility and thus constitute a solution for training in a dispersed industry.

Keywords Chat discussions, Documentary practices, Food production, General vocabularies, Online in-service training

Paper type Research paper

Introduction

In this study, the research interest concerns online in-service training in the Swedish food production industry. The food production industry is undergoing transformation, becoming more regulated and facing new demands on competence within the production, making it an interesting educational case. Workplace training is increasingly supported by, and dependent on information technology (IT). Because companies are operating in an intensely competitive, global arena, the employees need to be continuously educated throughout their careers. IT is seen both as part of this challenge and as a possible aid. As Cheng *et al.* (2014, p. 57) stated, creating an "[…] information intensive and technology oriented working life have led to new ways of learning and training through the adoption of e-learning and information and communication technologies". The changing demands at work can also be understood as one reason why education has difficulties in providing the knowledge needed at work,

Journal of Workplace Learning
Vol. 28 No. 3, 2016
pp. 98-114

1366-5626
DOI 10.1108/JWL-05-2015-0041

a gap discussed by Tynjälä (2008). According to Tynjälä (2008, p. 145), students "need to be provided with conceptual and pedagogical tools which make it possible for them to integrate theoretical knowledge with their practical experiences".

In response to critiques of the vagueness and complexity of research on online professional development, Cheng *et al.* (2014) explored research articles on this topic through bibliometric analysis. They identified research on technology-supported professional development as one of the main clusters of research. Formal IT-supported training constitutes the main body of research, but with the increased use of social media in society, several authors see the potential for introducing such technologies as support for workplace learning (Zhao and Kemp, 2012; García-Peñalvo *et al.*, 2012). However, research in this field lacks coherence, and there is heightened interest in research focusing on aspects of feasibility. This can be interpreted as a need for more detailed studies on practical engagement in IT-supported learning in work. Research within the field of learning in the workplace has also been criticised for neglecting the socio-cultural nature and boundaries that influence learning in the workplace (Billett and Choy, 2013).

The Swedish food production industry was the fourth largest industry in Sweden in 2013, with a production value of SEK 170bn, approximately 3,500 companies and employing 55,000 workers (according to The Swedish Food Federation, 2016). In Sweden as elsewhere, food quality and safety have been topics for the past 20 years in the public debate, in food policy, in industry and in research (Grunert, 2005). Food scares, increased public interest and critique and more demanding and fragmented consumer groups are some of the reasons for such a debate. In Sweden, this has led to a set of changes concerning quality assurance (QA) issues, initiated at the European level. This is manifested in the increased number of food safety regulations and systematic production methods. Such a "turn to quality" (Goodman, 2003, p. 1) in the area of food production means that quality criteria must be ingrained in food supply chains and that the question of quality has become a major aspect around which competition now revolves (Grunert, 2005; Morris and Young, 2000). This growing interest in expanding and implementing QA in the area of food production is most explicitly illustrated in the emergence of training courses concerning different QA methods. A QA method can be seen as a way of attuning people to what they must check, observe and identify as problems in production. Thus, this involves learning to work and perceive work processes in a different way compared to earlier.

This study scrutinises online in-service training for employees in the food production industry. The in-service training activities are directly relevant to participants' daily work practices. They are organised with a focus on issues related to this particular field of expertise and provide an opportunity for employees in the food industry to share knowledge and work experiences. Such work experiences are examined in accordance with the new regulations and evaluated in terms of principles of how concrete work tasks should be carried out. In this way, the regulating practices of QA penetrate the daily work of employees in the food production industry.

In-service training has previously not been very prominent in the food industry. The formal educational requirements have been low, and the resources for systematically organising in-service training for staff have been lacking. The courses under study are part of an initiative in Sweden that began in the late 1990s to approach small- and

medium-sized producers and businesses in the food industry with the idea of developing and supporting customised in-service training efforts.

Research has claimed that digital technologies provide new opportunities and activities in which work and further training are integrated (Tynjälä and Häkkinen, 2005). The use of digital technologies is understood to enable flexibility and availability, as they make learning activities outside traditional educational institutions possible (Porter, 1997). As Billett (2001, p. 63) pointed out, "for many within the workforce – indeed for entire sectors of workers – the workplace is the only location in which to learn about and develop further their vocational knowledge". Many people cannot leave their regular work to participate in conventional, instructional activities or courses that require extended physical presence. As such, digital technologies have the potential to bring together workers who would otherwise not interact (Romano, 2008). People working in different professional fields are more or less expected, or even required, to use such technologies, to be continuously updated and to take part in further training related to their field of expertise (Virpi Slotte, 2006). Digital technologies render possible specialised courses where people working in small, rather narrow and geographically dispersed professional fields can cooperate.

This study is interested in participation in online environments in terms of the kinds of discussions that are established in online training activities. It is specifically interested in how the participants discuss current work experiences in relation to the QA contents they are expected to learn in the courses. Hence, the "learning curriculum" (Lave, 1990) is the understanding of methods and procedures that the course participants are expected to become accustomed to and, eventually, be held accountable for in their work practices. In more concrete terms, participants have to learn a set of procedures, learn how to write different kinds of documents and learn how to initiate and maintain discussions on QA in their own organisations. The problem of connecting or bridging between practical concerns and theoretical concepts or principles relates to a longstanding discussion in research on learning in different kinds of instructional contexts.

The present study understands the online in-service training efforts as arenas where the course participants' work experiences are confronted with the generic vocabulary of QA mediated by a course curricula and an expert in the courses. The participants are asked to use their current work repertoire when taking part in online discussions about the general QA vocabulary. At the same time, the QA vocabulary is seen as a way of attuning the participants to, or making them adopt, a transformed way of talking and writing about their current work processes.

The research questions are:

RQ1. How do the participants, in online text-based training, relate practical work experiences and general principles and vocabulary presented as course content?

RQ2. How do the online text-based training systems afford or constrain the making of connections between practical work and general principles?

The remainder of the paper is organized as follows: first, we provide a theoretical perspective on the issue of bridging practical concerns and theoretical concepts, as well as on the use of computer-mediated discussion in educational settings. Second, we

describe the empirical setting and the methods used. Finally, we present the results from our study and offer conclusions and implications.

Theoretical perspective

Transformations through regulating and procedural practices are theoretically understood as a set of changes that bring about highly specific documentary practices. In this manner, in-service training may be considered as an example of an activity through which documentary practices are implemented, as new textual practices are particularly relevant in companies seeking to participate in global economies (Farrell, 2001). Smith (2005) argued that such documentary practices are central to institutions' coordination to regulate what people are made accountable for in their work. A main function of such discursive practices is documentary governance (Smith, 2005; Smith and Schryer, 2008). The unique property of written documents is that the same content can be shared at multiple local work sites (Smith, 2001). Consequently, for rules and regulations to be implemented and coordinated across multiple local settings and over time, generic vocabularies hold a remarkable capacity to have far-reaching consequences (Wagner, 2005).

There is, however, a duality in the implementation and use of generic vocabularies. Most commonly, as pointed to by Farrell (2001), such textual practices are described as neutral and benign interventions in people's work practices to develop new linguistic repertoires of employees and through this, open new possibilities in their work. Simultaneously, these documentary practices are used quite effectively by organizations to train employees to document their work and engage in activities that regulate and restrict their work and decision-making. The in-service training activities in the present study may be seen as attempts to institutionalise specific textual practices, realised through course experts representing the authority that regulates the Swedish food production industry. The expected discursive changes may theoretically be understood through "technologisation of discourse" and through the local work of what Fairclough (1996, 2002) referred to as "discourse technologists". The organisational role of discourse technologists is to design new discursive practices and procedures in line with institutional aims and strategies and to train people in their use. In this respect, as representatives of the authority, the course experts have an interest in the QA contents that the course participants are expected to learn, and the course experts may be seen as playing the role of discourse technologists.

In online text-based environments, participants have to expose their ideas through written texts with the awareness that their ideas will be read and downloaded by other students (Jonsson and Säljö, 2009). Online discussions have a high degree of persistency, which provides the participants with direct access to the written products (Simpson, 2003), i.e. they may catch sight not only of what they already know but also of what they do not know and what they might be expected to know. In this sense, the online discussions as a textual practice may be considered a way of making workers regulate their own practices (Scheeres, 2003). This also concerns how the participants are able to carry out written discussions (Simpson, 2003). Online text-based discussions are often portrayed as a powerful mediator in the process of knowledge construction (Hulkari and Mahlamki-Kultanen, 2008; Kelly *et al.*, 2007). Compared with spoken conversation, written discussions are argued to be demanding in the sense that the written word is

reflective and explicit, and thereby disciplines how we think and communicate (Garrison, 1997).

A point of departure in the present study is that going from talking about current work practices to writing about them in a specific manner, is a demanding task for the participants (Nilsen, 2010). An interesting dimension of learning to carry out written discussions is that the course participants are expected to, on the one hand, use experiences from everyday work as resources in conversations, and, on the other hand, learn to examine and evaluate work experiences through a set of normative and general QA principles or vocabularies as well as through more concrete procedures (regulations and methods). A way to overcome the gap between theory and practice is to use Schön's (1987) ideas of the "reflective practicum", which means that educators should engage aspiring professionals to reflect upon whether the concepts and ideas they are confronted with in the curricula can constitute a resource for them in managing dilemmas in practice (Guile, 2014). One problem of such "pedagogies of reflection" is that they have assumed that Schön's starting points, i.e. "theoretical and practical reasoning are separate and different from one another and are best related through some reflective process" (Guile, 2014). This results in a reflective struggle, as practitioners must relate theoretical and practical reasoning to their own work practice and then to "use the outcome of this struggle as a resource to work in their professional settings" (Guile, 2014, p. 133).

Empirical case and data

The empirical material consists of chat log files from in-service training courses. The courses address the issues of food safety and QA. In 2006, the European Union initiated new food regulations that considerably raised the requirements and standards for food handling procedures. The regulations state that all employees handling and preparing food in some way are required to work systematically according to specific QA methods.

In the courses, physical meetings were combined with Web lectures, discussion forums and chat sessions. The discussion forum was used for posting assignments and general information whereas the chat sessions were used as arenas to discuss content-related assignments and problems. Each course included one or more course experts and course participants. The course experts could decide if, and how the chat, forums and Web lectures were used in the course. The course participants were explicitly invited to use their daily work experiences in the courses: "In the course exercises, you will use your own organization as a case and introduce new knowledge into your work practice" (author's translation). In the course risk management course, for instance, the assignment was to document the relevant risks involving a product the participants had chosen themselves, which was often a product that could potentially be produced in their own organisation. The course participants are also supposed to introduce new methods to co-workers and employees in their own organizations.

The course participants came from a broad range of different food production segments: they included restaurant employees, employees in large food production industries, self-employed persons, food inspectors and students in agriculture science. This implies that some of the participants were attending the courses as part of formal training, others were assigned by their employers to take the courses as part of the company's QA certification and those who were self-employed needed the course

certification. As has already been mentioned, many of the course participants attended the courses during working hours, which meant that some of them were actually at their workplaces when they participated. Course experts had expertise in a range of different fields within the food production industry. Some, for instance, represented the state authority that regulates the Swedish food production industry (Table I).

The empirical material consists of chat interaction as captured in computer log files in the courses. The chat data were uploaded in the discussion forum and made available for analysis, the log files were available to both participants and researchers. The empirical material was collected from 10 courses and 32 chat sessions. In total, 2,862 chat postings. The studied courses were five weeks long, except HACCP 1-2 (2003), which was nine weeks long.

Method

Garcia and Jacobs (1999) argued that the ongoing construction of the chat cannot be captured in chat log files, as the process of producing a posting is private and therefore not visible to other participants until it is posted. In this study, we acknowledge that the process of formulating a posting is unavailable to the other course participants and cannot be used as a resource for understanding in the chat sessions. This implies that what is available as resources and contributions to which participants respond needs to be made recognisable in the chat forum to be picked up and oriented to *as social actions*. It is precisely on these premises that this communication develops. Thus, the concern here is, thus, not with the production of posted texts, but rather the way posted texts are organized in the chat sessions so as to be intelligible to the participants (Nilsen and Mäkitalo, 2010).

The more specific focus of this study concerns how the participants discuss the content they are expected to learn in the in-service training courses. It was noted in the data that the participants discussed specific examples from their own work settings as well as more general quality assurance issues and procedures, seemingly at the same time. Such a focus on the content-related discussions meant that it was necessary to follow more closely the specific topics of discussions or threads in the chat sessions. This means that, in the analysis, we have considered postings that belonged to specific discussion threads. Isolating interactional dyads in this manner is a common analytical

Course	Participants	Experts	Chat sessions	Postings
Bioactive substances (2004)	7	1	4	187
HACCP 1-2 (2003)	16	3	9	950
HACCP 3 (2003)	1	2	3	83
Consumer and market (2004)	5	1	3	88
Legislation (2004)	5	1	3	230
Product development method (2003)	7	1	5	940
Risk analysis (2003)	5	1	2	119
Microbiology (2004)	2	1	1	64
HACCP 1-2 (2004)	6	1	1	136
HACCP 3 (2004)	3	1	1	65
Total sessions	32			
Total postings	2,862			

Table I.
Overview of the data: participants, experts, chat sessions and postings per course

procedure in research on computer-mediated communication (Sveningsson, 2001). For this study, however, the isolation of specific threads served, first and foremost, the purpose of keeping the excerpts at a reasonable length and in that sense, making them more readable. This follows from the empirical observation that the participants in the activities explored in the present study posted rather extended messages, which meant that if all the postings that belonged to one discussion thread were to be included in an excerpt, the excerpt would have been several pages long. The data have been translated from Swedish to English for the purpose of publishing.

Results

Each course included one to nine chat sessions and each chat session lasted 20 minutes to 2 hours. The number of participants in the studied sessions varied between 1 and 10, including experts. The number of postings in the sessions ranged from 13 to 288. With regard to the number of postings produced by individual participants in each of the sessions, the course experts clearly dominated the discussions with 30-60 per cent of the total number of postings in each chat. The chat sessions were initiated and moderated by course experts.

In the results, we use data from two courses: Product Development Method and Hazard Analysis and Critical Control Points (HACCP) 1-2. The purpose of selecting empirical illustrations in this section is twofold. The first two excerpts were selected as examples of discussions that took concrete work-related examples as the starting point and were eventually transformed into discussions about general QA principles and vocabulary. The two last excerpts were selected to exemplify discussions about general QA principles, where concrete work examples were introduced as resources for facilitating an understanding of QA principles and vocabulary.

Work experience transformed into examples of general principles/vocabulary

The first two excerpts are from the course Product Development Method. The course curriculum aims to provide basic and practical insights into the design of new products and provide principles for selecting an appropriate product strategy with regard to the aims. This indicates a systematic and procedural approach to product development, which is described in six steps:

(1) why product development;
(2) strategies;
(3) concept;
(4) idea;
(5) selection; and
(6) realisation.

Five chat sessions were carried out in this course; Excerpts 1 and 2 are from the third chat session. There is one course expert in this course. Prior to this part of their online discussion, the participants had discussed some of their ideas for developing a new product, which points to the fourth step in the systematic procedure outlined above. This sharing of ideas for potential development continues in the following excerpt, as one idea for a product is discussed:

Excerpt 1.

105 [Kim][2:13:59]: What idea do you have Catherine?

106 [Catherine][2:14:52]: I'm working on a hypothetical lingonberry jelly for Trade.

107 [Catherine][2:16:24]: True, john has indeed pointed to quite a lot of problems earlier today, but one has to do something. I was also thinking about a concept for muesli with dried lingonberries, but that turned out to be the area for berry suppliers rather than Trade's.

108 [Catherine][2:17:59]: 1,000 ideas for every bestseller […] Only 998 left. You can read more about mine, John's, Blair's, and Christine's product ideas, in the discussion forum.

109 [Kim][2:19:26]: Yes I've read about them there.

110 [Catherine][2:20:46]: (Name of course expert), is there anything else?

111 [Course expert][2:21:43]: Well, wait a minute.

112 [Course expert][2:23:42]: I had a visitor. I haven't quite followed the chat between you and John. Do you have anything?

113 [Catherine][2:25:10]: Mostly that lingonberry jelly is not as simple as it first sounds …

114 [Catherine][2:26:16]: Oscar thought that the concept of dried lingonberries was more for their suppliers of berries than for Trade itself, so I will probably concentrate on the jelly in the future.

Kim initiates a discussion about product ideas by asking Catherine about the idea she is working on (105). Catherine presents her idea, which is a "hypothetical lingonberry jelly for Trade" (106). Catherine's use of "hypothetical" needs some elaboration. Catherine is a student in agricultural science; thus, she is not working for a company on which a product idea can be based. Instead, Catherine declared earlier in the discussion that she has contacted Trade to get some input on developing a hypothetical idea for a jelly product for this company. Trade is a company that produces organic jams, marmalades, juices and vegetables. Two of the other course participants, John and Oscar, work at Trade. However, the product idea seems to involve "lots of problems" (107, 113). Catherine also brings up another product idea she has worked on, namely, "muesli with dried lingonberries" (114). She decides not to pursue this idea because it is outside Trade's product segment. The process of developing ideas and deselecting some of them can be seen as a way towards the fifth step in the product development method, i.e. selection. Catherine describes this process as follows: "1,000 ideas for every bestseller […]. Only 998 left" (108). Although the participants discuss their ideas for products, such a discussion is clearly oriented towards the general principles of the method they are to learn in the course. This can be seen as an example of how such documentary practices can be used quite effectively to engage participants in activities that regulate and to some extent restrict their work (Farrell, 2001), i.e. a technologisation of the discourse (Fairclough, 1996, 2002) is being constituted.

Catherine directs Kim to the discussion forum for further reading on the course participants' product ideas (108). Then, Catherine directs her attention to the course

expert, checking with him if there is anything else for them to discuss (110). The course expert seemingly did not follow the previous discussion (112), so Catherine updates him on the problems in developing a product idea (113, 114). As the discussion continues, the course expert responds to Catherine's public sharing of experiences:

Excerpt 2.

115 [Course expert][2:26:41]: Good! Nothing is easy you see. Is it okay to work with Trade products? Now you've got a document from Oscar to look at and discuss with him.

116 [Catherine][2:27:28]: Do you mean "document draft"?

117 [Course expert][2:28:15]: Yes, exactly. You're also more or less clear about the criteria. You can also add some parts that I think Oscar and John could easily miss out on.

118 [Catherine][2:28:40]: That's okay. There are still restrictions, even though my product idea is strictly hypothetical.

119 [Course expert][2:30:55]: Christine just uploaded a formula for criteria, a somewhat updated but sharp one that she and her company is using. Perhaps an idea for Trade's document?

The course expert acknowledges the problems the participants have with the general procedure or method they are working (115). Then he directs Catherine's attention to a document posted by Oscar in the forum and encourages her to discuss it with Oscar (115). This "document draft" (as referred to by Catherine in 116) refers to the product development assignment that Oscar and John wrote and uploaded to the forum. However, according to the course expert, this discussion should be conducted in a specific manner. The course expert pointed out that a starting point for such a discussion is that Catherine seems to be clear about the relevant criteria, while John and Oscar, relying on their work experiences, seem to have missed out on such criteria in their assignment (117). In this manner, the course expert introduces *criteria* as a relevant vocabulary for a discussion about and in the documentation of product development method. Catherine follows this discussion when she clarifies that even though her idea is "strictly hypothetical", "there are restrictions" on her work (118). Catherine's use of "restrictions" relates to the course expert's *criteria*, but without using the exact wording. The course expert continues to discuss general criteria in product development by turning the participants' attention to Christine's updated, sharp and authentic "formula for criteria" (119). Hence, a blueprint for a correct formula for criteria is suggested for the participants, especially for the participants from Trade, to learn from and examine in more detail. The persistency of the online discussions where the course participants discuss and upload their documents means that the course participants expose their ideas and, in this case, their understanding, or lack of understanding, of criteria in an explicit manner. The course expert uses this immediate access to the participants' understanding, or lack of understanding, to point out what they already know, what they do not know and what they might be expected to know. Interestingly, John and Oscar, the two Trade employees, knew a lot about the problems and product segments

in their line of work but were lacking in the discussion of such work experiences in terms of general QA vocabulary and, more specifically, in terms of criteria.

This excerpt shows that the discussion starts with the participants' specific ideas for a product and with some of the experienced problems tied to specific products. Through the course expert's introduction and use of a general QA vocabulary in terms of *criteria*, the participants start to discuss their concrete ideas using such vocabulary. The discussion about criteria, however, is not conducted with explicit references to textbooks or manuals. Rather, the course expert uses the participants' written assignments to instruct them, in public, about the relevant (and non-relevant) criteria to consider in a product development procedure. In this respect, the course expert can be seen as taking the role as a discourse technologist (Fairclough, 1996, 2002). As the excerpts above show, however, the course participants do not immediately adopt the course expert's use of the concept criteria. The participants, therefore, need to discuss their own work practices and experiences in a different way in the online discussions. There is some ambiguity as to whether the participants are using a general rule in a specific case or moving from the specific case to express a general rule. As the forthcoming excerpts will show, they move back and forth between the general and the specific. The general procedure and the specific product example presuppose one another for productive discussions to be established. This can be described as a reflective struggle the practitioners are confronted with when they are to relate theoretical and practical reasoning to their own work practice and use such struggle as a resource in work (Guile, 2014).

Discussing and explaining general principles/vocabulary through examples

In the last two excerpts, online discussions from the sixth chat session in the course in HACCP 1-2 (2003) are analysed. The aim of this course is to provide participants with resources and a foundation for producing an HACCP plan. Web lectures are part of all the courses scrutinized. For this course, the Web lecture consisted of a description of the principles of HACCP, followed by an analysis of five product examples. After the Web lecture, the instruction was to first perform a hazard analysis on the meatball production example used in the Web lecture and then to conduct a hazard analysis on a self-chosen product. Both tasks were to be documented and made available for the other participants in the forum. Seven steps must be considered in production of an HACCP plan:

(1) conducting a hazard analysis;
(2) identifying critical control points;
(3) establishing critical limits for each critical control point;
(4) establishing critical control point monitoring requirements;
(5) establishing corrective actions;
(6) establishing record-keeping procedures; and
(7) establishing procedures for ensuring the HACCP system works as intended.

These seven steps are part of the content of the Web lecture. As the analysis will show, the course participants invoke this seven-step vocabulary in the online discussions.

In Excerpt 3, the participants are discussing how to perform a hazard analysis, which refers to Step 1 in the production of a HACCP plan. Prior to the discussion below, the course expert has asked a question about whether the course participants find the hazard analysis difficult. The course expert uses the participants' written responses as a basis for the following conclusion:

Excerpt 3.

42 [Course expert][08:48:10]: So the principle is clear but finding the hazards is more difficult. Well, you are not supposed to be experts on this. What is important is that you get the principle and that you realize that you could need help with the hazards. It's not surprising that your suppliers can't help you either. Mould is probably the only thing that can't grow in dried seasoning, a lot of bacteria, however, such as salmonella, cope with drought rather well.

43 [Lily][08:48:26]: Can you buy eggs directly from the egg lady?

44 [Anne][08:48:49]: We have brainstormed hazards really thoroughly and then we will see later on if they are critical hazards or not. It has been useful to go through the process; we have found a lot of things that have to be taken care of.

45 [Course expert][08:49:14]: There are whole eggs in the meatballs.

46 [Lily][08:50:10]: Yes, but I was thinking about my homemade ice cream which is not heated up.

47 [Course expert][08:50:28]: That's good Anne, this is just the way it can work when you really consider something.

Based on the discussions, the course expert concludes that the course participants are "clear" about the principles of a HACCP-plan. However, the difficulties seem to be in defining product-specific hazards (42). Hence, the course expert uses the previous online discussions and the course participants' postings to catch sight of what the course participants already know (i.e. the principles), as well as the kinds of difficulties they have and what he needs to clarify. Therefore, instead of pursuing a discussion about the details of all the relevant risks, which the course participants are not expected to be experts on, the course expert emphasises the advantage of knowing the general procedures and vocabulary of risk analysis and realising that they "could need help with the hazards" (42).

The issues of mould and bacteria, which the course expert addresses in the last part of the posting (42), refer to a previous question from a course participant about the risks or hazards in dried seasoning, but it serves as an example of the difficulty in identifying such risks and the problems in using even the suppliers as external expertise. This excerpt illustrates how the course experts discuss the general formulae or vocabulary of risk analysis by using the specific example of dried seasoning to make clear the difficulties in identifying hazards in products. The course experts, as representatives of the authority, have an interest in the QA contents the course participants are expected to learn and use the discussions to anticipate what the course participants are expected to know in concrete food production work. This technologisation of discourse continues as Anne, in a response to the course expert, shares her company's risk analysis work as an

example of a process of hazard analysis (44). Anne describes the process as involving a brainstorming about different hazards to identify the critical hazards. But instead of describing the hazards in terms of relevance, she uses "critical" as a criterion for making a judgement, which is a term that is central to the seven steps in an HACCP plan. In this sense, Anne orients to the general vocabulary of HACCP, introduced in the Web lecture. The course expert's positive evaluation indicates that this is a relevant term to use. Thus, Anne takes on the general vocabulary for discussing risk analysis in a relevant manner (47).

Simultaneously, another discussion is pursued by Lily who asks about the possible hazards of buying eggs from the "egg lady" (43) with regard to her homemade ice cream (46). There seems to be some confusion which of the assignments they are discussing, as the discussion about hazards with eggs continues:

Excerpt 4.

48 [Eve][08:52:05]: Is it safer to use egg powder than to crack your own eggs in production?

49 [Course expert][08:52:23]: What do you do with the eggshells in the meatballs.

50 [Course expert][08:53:05]: Eggs from the lady – what can be a hazard there? If it's a small flock of less than 200 fowl then she is not obliged to test them for salmonella as all the others have to do three times during the fowls' laying periods. So you must try to consider the probability of her getting salmonella among the fowl. Because if she gets it, then the ice cream is in trouble right?

51 [Lily][08:55:35]: Yes, I think that her eggs will only be used in French chocolate cakes in the future.

52 [Course expert][08:55:37]: Normally, egg powder is pasteurized and therefore safer. But one must bear in mind that salmonella in Swedish eggs is rare. If you use imported eggs, however, then German eggs are a bigger problem. Finnish eggs, which we import lots of, are as good as Swedish eggs.

56 [Course expert][09:01:30]: When I look at your suggestions for Guy's meatballs, they look quite good. So it seems that the principles have stuck. The fact that you find it difficult to know what a hazard is, is I have said before, quite natural. The difficulty of this part is also pointed out in the course and that you will often need the help of experts. All the things written in the Fact Case are not necessarily relevant to your specific situation. I can imagine that those of you working in restaurants would need to call in an expert for a day or two to analyse what would be relevant for you. The rest you will manage quite well yourselves once the course is finished.

Eve contributes to the discussion about egg hazards when she suggests using egg powder instead of cracking eggs by hand as a way of avoiding potential hazards (48). However, rather than continuing the discussion about eggs merely as ingredients, the course expert introduces a discussion about eggs in terms of relevant hazards and estimations (50). The course expert alters the premises for the discussion and reformulates Lily's question (in 43) into a discussion of estimating the probability of fowl catching salmonella (50). The course expert argues that such estimations should be

based on current regulations and rules in food production, i.e. small producers (such as the egg lady), compared to more regulated production companies, are not required to test their animals for salmonella (50). Given such general regulations, the course expert points to the course participants' responsibility to estimate the probability of, for instance, salmonella among the egg lady's fowls. The course expert uses a rhetorical question to point to the risks for her ice cream production (50). However, as part of such probability work, the course expert suggests considering where the eggs have been produced, as e.g. "salmonella is rare in Swedish eggs" (52). This illustrates the course experts' role as discourse technologists, as they, having designed the new discursive practices, train the course participants in ways in which they can reason about and balance the different aspects that are necessary to include in a hazard analysis (as exemplified in 50, 52). In this way, the course expert uses the ice cream example to make visible general procedure and vocabulary for estimating the probabilities of specific hazards. Such reasoning and estimation is not only found in general procedures, but is also intertwined with and part of professional practice and work experience.

This part of the online discussion comes to an end as the course expert evaluates the participants' meatball assignments. The online forum renders this public evaluation possible. The immediate access to other participants' documents and postings thus shapes the awareness of the discussions. In his evaluation, the course expert returns to the agenda of instituting a general principle and vocabulary of HACCP. In this respect, what is important to know or what is expected of the course participants to know in food production work is not the exact product-specific hazards, but being aware that they will often need to include external expertise when performing hazard analysis (56).

The course experts use and refer to the course participants' written assignments to train them in new discursive practices, which are the general principles and vocabulary of the Product Development Method and HACCP. Some ambiguity often emerges, such as in Excerpt 4, as the course expert brings up the differences in work practices with regard to the risk analysis they will perform and made accountable for later on (56). In practice, people working in restaurants will consult an expert to produce an HACCP-plan, while the rest of the course participants will manage on their own. The data also show that the course experts engage the course participants in discussions to reflect upon how the general principles and vocabulary they are confronted with in the course can be used as resources in managing their work practice. In this manner, the course experts address what Guile (2014) refers to as the struggle to relate theoretical and practical reasoning to their own work and how to use such resources in work.

Discussion and conclusions

This study examined online text-based discussions as part of in-service training for employees in the food industry, particularly how current work practices and experiences are confronted with the new discursive practices of general QA principles and vocabulary. The in-service training has specific implications for the participants' work practices. In contrast to higher education, in the in-service training, participants will be accountable for the issues they discuss, which necessitate a different relation to the content at hand. The approach they are supposed to develop for their work practice cannot be found in the curriculum alone. Rather, the in-service training provides a context in which the participants are expected to learn a QA discourse that will permeate the industry they are working in. In the online discussions, they are expected to learn

how to write different kinds of plans and documents and how to establish and maintain a QA discourse and approach in their own work practices. Although the course experts might "own" the issues during the in-service training efforts, the participants will subsequently be made accountable for implementing these QA issues in their own organisations.

As our results show, the participants are in the process of adopting the QA discourse. This becomes visible in the excerpts when the participants write about their own examples and ideas in a different way. However, for the participants to adopt a QA discourse (including specific procedures, regulations, professional judgements and vocabulary), they are also required to critically examine their own practices. In the text-based discussions, the participants oscillate between concrete examples, ideas and products from their own organisations on the one hand and the vocabularies of general and systematic QA procedures on the other.

As the results show, the course experts are crucial resources in the participants' processes of adopting a different method of working. The course experts often take the participants' concrete examples as a starting point for their text-based discussions to introduce the participants to a specific vocabulary and procedure, which the participants, in turn, should discuss in relation to their own work practices. To be more specific, in the first set of examples, the online discussions start with the participants' ideas for and experiences of concrete products, but such experiences and ideas are transformed into a discussion of criteria for product development and how a relevant criteria list is written. In the second set of examples, they discuss the procedures for estimating the probability of different hazards and the balance between knowing all the details of the hazards (which is not necessary) and knowing a general procedure. A notable finding is that general principles have to be substantiated in the form of concrete examples to function as principles, and concrete examples are made relevant only if they have a bearing on a more general issue. This is handled dynamically, for instance, when the course expert discusses both the general procedure of hazard analysis and product-specific hazards in the same posting. This also suggests a specific instructional situation where examples do not only have the status of examples; they are also examples that the participants are responsible for managing in their subsequent work.

What is also interesting is that QA systems or methods of the kind discussed here are a way of preparing people for, or attuning them to, what they must control, pay attention to and identify as problems. Such systems or methods constitute an interesting "output" of training, as they provide participants with a way of thinking, a way of structuring the world and a way of knowing what is relevant. Hence, QA methods discipline or govern (Smith, 2005) the participants' text-based discussions when they adopt a different approach from that of their current work practices.

What is also intriguing in the discussions is that the course participants need to express themselves in writing. The participants are in a situation where the online discussions require a higher degree of precision compared with talking about work. For the course participants, the persistency of the text-based discussions means that they expose their understanding of work and of general principles in a way that they can be made accountable for. For the course experts, access to the course participants' written understandings implies a possibility to monitor what the participants already know and what they do not know and to point to what they are expected to know. These written discussions thus involve a form of disciplining of course participants.

The participants are expected to adopt a generic discourse with a set of accompanying discursive practices that regulate their work procedures. The results show that the course participants gradually take over the vocabulary of QA; they more frequently discuss their work in terms of, for instance, criteria, relevance, estimations and hazards. What adds to the complexity of what they are expected to learn in the in-service training activities is that the participants are literally writing themselves into a new operational understanding of their work practices.

Our findings suggest that online technologies are suitable for training activities where the course content is, to a large extent, carried out in writing, i.e. the course participants are expected to incorporate a documentary practice in which they should produce certain kinds of documents and, eventually, invoke such documentary activities in their daily work practices. The persistency of the course participants' documented work experiences and cases allows them to be continuously invoked as material in the discussions. The use of both synchronous chat and discussion forums is central to the course design. The combination provides the opportunity to create connections between participants' documented cases, the formal rules and regulations and the development of QA vocabulary in the chat. The course participants' assignments (uploaded to the discussion forums) become resources in, and contributions to, the discussions. The findings demonstrate that this serves a specific function to the course experts; by pointing to the assignments either as good examples or as poor examples, they are able to train the course participants in "the documentary possibilities of standardizations" (Smith and Schryer, 2008, p. 117).

References

Billett, S. (2001), "Co-participation: affordance and engagement at work", *New Directions for Adult and Continuing Education*, Vol. 92, pp. 63-72.

Billett, S. and Choy, S. (2013), "Learning through work: emerging perspectives and new challenges", *Journal of Workplace Learning*, Vol. 25 No. 4, pp. 264-276.

Cheng, B., Wang, M., Mörch, A.I., Chen, N.-S. and Spector, J.M. (2014), "Research on e-learning in the workplace 2000-2012: a bibliometric analysis of the literature", *Educational Research Review*, Vol. 11, pp. 56-72.

Fairclough, N. (1996), "Technologisation of discourse", in Caldas-Coulthard, C.R. and Coulthard, M. (Eds), *Texts and Practices: Readings in Critical Discourse Analysis*, Routledge, London, pp. 71-83.

Fairclough, N. (2002), "Language in new capitalism", *Discourse & Society*, Vol. 13 No. 2, pp. 163-166.

Farrell, L. (2001), "The 'new word order': workplace education and the textual practice of economic globalization", *Pedagogy, Culture & Society*, Vol. 9 No. 1, pp. 57-75.

Garcia, A.C. and Jacobs, J.B. (1999), "The eyes of the beholder: understanding the turn-taking system in quasi-synchronous computer-mediated communication", *Research on Language & Social Interaction*, Vol. 32 No. 4, pp. 337-367.

García-Peñalvo, F.J., Colomo-Palacios, R. and Lytras, M.D. (2012), "Informal learning in work environments: training with the Social Web in the workplace", *Behaviour & Information Technology*, Vol. 31 No. 8, pp. 753-755.

Garrison, D.R. (1997), "Computer conferencing: the post-industrial age of distance education", *Open Learning*, Vol. 12 No. 2, pp. 3-11.

Goodman, J. (2003), "The quality 'turn' and alternative food practices: reflections and agenda", *Journal of Rural Studies*, Vol. 19 No. 1, pp. 1-7.

Grunert, K.G. (2005), "Food quality and safety: consumer perception and demand", *European Review of Agricultural Economics*, Vol. 32 No. 3, pp. 369-391.

Guile, D. (2014), "Interprofessional working and learning: a conceptualization of their relationship and its implications for education", in Fenwick, T. and Nerland, M. (Eds), *Reconceptualising Professional Learning: Sociomaterial Knowledge, Practices and Responsibilities*, Routledge, London, pp. 125-139.

Hulkari, K. and Mahlamki-Kultanen, S. (2008), "Reflection through web discussions: assessing nursing students' work-based learning", *Journal of Workplace Learning*, Vol. 20 No. 3, pp. 157-164.

Jonsson, L.-E. and Säljö, R. (2009), "The online seminar as enacted practice", in Stansfield, M. and Connolly, T. (Eds), *Institutional Transformation through Best Practices in Virtual Campus Development: Advancing E-Learning Policies*, Information Science Reference, Hershey, PA, pp. 38-55.

Kelly, P., Gale, K., Wheeler, S. and Tucker, V. (2007), "Taking a stance: promoting deliberate action through online postgraduate professional development", *Technology, Pedagogy and Education*, Vol. 16 No. 2, pp. 153-176.

Lave, J. (1990), "The culture of acquisition and the practice of understanding", in Stigler, J.W., Shweder, R.A. and Herdt, G. (Eds), *Cultural Psychology*, Cambridge University Press, Cambridge, pp. 259-286.

Morris, C. and Young, C. (2000), "'Seed to shelf', 'teat to table', 'barely to beer' and 'womb to tomb': discourses of food quality and quality assurance schemes in UK", *Journal of Rural Studies*, Vol. 16 No. 1, pp. 103-115.

Nilsen, M. (2010), "Negotiating the context of online in-service training: 'expert' and 'non-expert' footings", *Studies in Continuing Education*, Vol. 32 No. 3, pp. 235-250.

Nilsen, M. and Mäkitalo, Å. (2010), "Towards a conversational culture? How participants establish strategies for co-ordinating chat postings in the context of in-service training", *Discourse Studies*, Vol. 12 No. 1, pp. 90-105.

Porter, L. (1997), *Creating the Virtual Classroom: Distance Learning with the Internet*, Wiley Computer, New York, NY.

Romano, M.E. (2008), "Online discussions as potential professional tool for first-year teachers", *Technology, Pedagogy and Education*, Vol. 17 No. 1, pp. 53-65.

Scheeres, H. (2003), "Learning to talk: from manual work to discourse as self-regulating practice", *Journal of Workplace Learning*, Vol. 15 Nos 7/8, pp. 332-337.

Schön, D.A. (1987), *Educating the Reflective Practitioner: Toward a New Design for Teaching and Learning in Professions*, Jossey-Bass, San Francisco, CA.

Simpson, J. (2003), "The discourse of computer-mediated communication: a study of an online community", Unpublished doctoral dissertation, University of Reading, Reading.

Smith, D.E. (2001), "Texts and the ontology of organizations and institutions", *Studies in Cultures, Organizations and Societies*, Vol. 7 No. 2, pp. 159-198.

Smith, D.E. (2005), *Institutional Ethnography: A Sociology for People*, AltaMira, Lanham, MD.

Smith, D.E. and Schryer, C.F. (2008), "On documentary society", in Bazerman, C. (Ed.), *Handbook in Research on Writing*, Taylor & Francis, New York, NY, pp. 113-127.

Sveningsson, M. (2001), *Creating a Sense of Community: Experiences from a Swedish Web Chat*, The Department of Theme Research, Linköping University.

The Swedish Food Federation (2016), available at: www.livsmedelsforetagen.se/in-english/ (accessed 18 January 2016).

Tynjälä, P. (2008), "Perspectives into learning at the workplace", *Educational Research Review*, Vol. 3 No. 2, pp. 130-154.

Tynjälä, P. and Häkkinen, P. (2005), "E-learning at work: Theoretical underpinnings and pedagogical challenges", *Journal of Workplace Learning*, Vol. 17 No. 5/6, pp. 318-336.

Virpi Slotte, A.H. (2006), "Putting professional development online: integrating learning as productive activity", *Journal of Workplace Learning*, Vol. 18 No. 4, pp. 235-247.

Wagner, K. (2005), "Organic farming: an institutional ethnography", Unpublished manuscript, University of Victoria, British Colombia.

Zhao, F. and Kemp, L. (2012), "Exploring individual, social and organisational effects on Web 2.0-based workplace learning: a research agenda for a systematic approach", *Research in Learning Technology*, Vol. 21, available at: http://dx.doi.org/10.3402/rlt.v21i0.19089 (accessed 20 October 2015).

Further reading

Simpson, J. (2005), "Conversational floor in synchronous text-based CMC discourse", *Discourse Studies*, Vol. 7 No. 3, pp. 337-361.

Corresponding author

Mona Lundin can be contacted at: mona.lundin@ped.gu.se