Article

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Workplace Training: How Context Impacts on Instructors' Activities

Sylvie Ouellet

This study describes the difficulties and challenges that instructors encounter when implementing structured training sessions to teach apprentices how to debone meat on the production line of an SME in the agri-food sector. The results obtained through our ergonomic approach showed that, in order to organize learning situations, the instructors, who were experienced employees, had to consider physical, material, and organizational conditions and choose between "what they would have liked to do" and "what they could really do." The results also showed that the work group can contribute to the training activity. The observations made in our study can serve as food for thought for anyone interested in workplace training conditions.

KEYWORDS: ergonomics, workplace training, training conditions, worker-instructor

Introduction

In the present-day world of work, characterized by the globalization of markets and rapid technological change, company directors are looking to increase their productivity in order to deal with increasingly ferocious competition (Sperandio, 1996, Everaere, 1999). To do so, companies are turning toward new forms of work organization that require greater versatility from personnel and more diversified products (Ughetto, 2007; Dubé and Mercure, 1997; Sperandio, 1996). In such a context, there is increasing emphasis being placed on the personnel's development of skills and know-how (Jacot, Brochier and Campinos-Dubernet, 2001; Tremblay and Doray, 2000), which makes workplace training an important issue in economic and social matters (Voisin, 2004).

There are several different types of workplace training. There are, for example, made-to-measure training, on-the-job training, coaching, alternating occupational training, and the buddy system (Balleux, 2002; Baudin, 1996). The degree of training varies from one company to another. It can range from a coach's spontaneous intervention of a relatively short duration at the time of hiring, to mentoring that involves training for the instructor and pairing up mentors and apprentices (Bélanger

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and Robitaille, 2008). Several factors may explain this variability. For instance, SMEs invest less in structured training than do large enterprises, thereby favouring on-the-job training (Bernier, 2005). This training is characterized by an employee learning at his work station while carrying out normal production tasks and operations (Baudin, 1996). The criteria that might explain SMEs approach to training are: 1) company size; 2) ownership (family, publicly-owned, etc.); 3) company structure (independent, franchise, etc.) and management methods; 4) environment (sector, region, markets, etc.); and 5) work organization, technologies, and qualified work force (Bernier, 2005). As concerns on-the-job training, Zeytinoglu *et al.* (2008) notes that people with a higher salary or more education have more opportunities than do others to participate in this type of training.

The instructors in in-house training are usually experienced employees (Bélanger, Larivière and Voyer, 2004; Balleux, 2002) who have been asked to train new employees. They are often confronted with a context in which the training activity must be accomplished alongside production activities, a fact which can complicate their task. The present article reports on research intervention conducted in the meat processing industry, which sheds light on the difficulties and challenges that structured training in an SME production system poses for instructors.

There were two goals to our study: the first was to further scientific knowledge of workplace training; the second was to respond to the request of a company that wished to develop a training program that would improve meat cutting and prevent musculoskeletal disorders (MSD). This was *made-to-measure training*, which has been defined by Beaudin (1996: 79) as "training offered at the request of the company for a program with local or special characteristics, based on the analysis of a work situation and developed under the responsibility or in agreement with the company so as to meet the needs of the company and a precise group of workers it employs" (free translation). Through this study, we hope: 1) to contribute to the ongoing discussion on the conditions in which instructors are asked to train new workers and on the impact these conditions have on the training and; 2) to propose possible avenues for solutions. We will begin in the next section by presenting the theoretical framework on which this study was based. We will then go on to describe the methodology and discuss the results of the instructors' training. We will conclude in the final section with a discussion of the elements that we think would be most important to include in training implementation.

Theoretical Framework

In the present article, we will examine questions concerning workplace training conditions using an ergonomic approach that focuses on work activity analysis (St-Vincent *et al.*, 2011; Guérin *et al.*, 2006). A theoretical framework was primarily

built by integrating notions from ergonomics (Guérin *et al.*, 2006; Vézina, 2001) and adult education (Billet, 2002; Bellier, 2002; Balleux, 2000; Jobert, 1993).

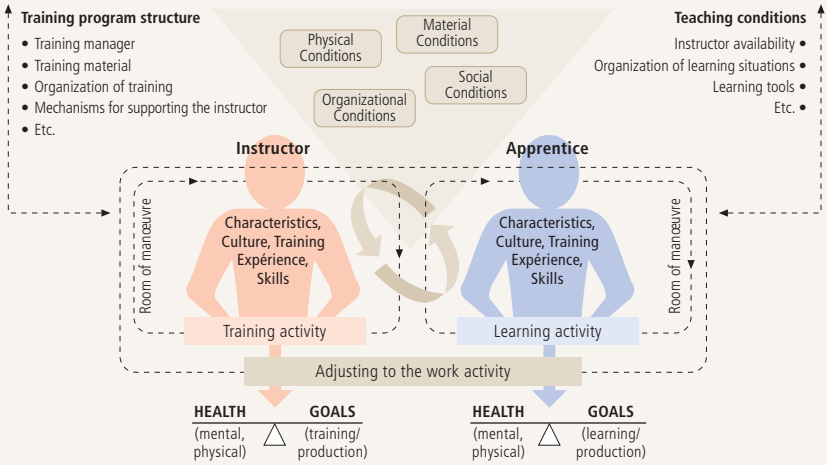
Let us begin by pointing out that workplace training cannot be reduced to simple demonstrations of movements and knowledge transmission. It must ultimately give an apprentice the ability to carry out a work activity that meets production objectives while preserving his health. By *work activity*, we mean the actions that a person conducts to meet work requirements while taking into account several types of conditions, namely: physical (environment – layout and space), material (machines, tools, etc.), organizational (schedules, teamwork, time management, etc.), and social (help between colleagues, waiting for other people, etc.). The work activity is therefore comprised of an interaction between a material environment and a psychosocial environment (Faulx and Petit, 2010). Furthermore, a worker does not consider work conditions separately, but rather in relation to each other so that he may develop strategies that allow him to meet work related constraints and protect himself from risks (Denis *et al.*, 2007; Chassaing, 2006; Chatigny, 2001; Gaudart, 1996). In Ouellet and Vézina (2009) for example, deboning operators explained that, as a piece of meat is coming toward their workspace, they choose a given technique and estimate the time required while considering several determinants: 1) the right or left side of the piece of meat (and of the animal); 2) the quality of the work already accomplished (length of the shank, fat removal quality); 3) the direction of the piece of meat with respect to the hand holding the tool; 4) the position of the piece on the conveyor belt; 5) the position of colleagues before and after on the line; and 6) the cutting quality of the knife.

The operator cannot consequently be defined as someone who simply carries out a task. Rather, he is someone who must be capable of taking initiatives and resolving problems if he is to properly respond to changes and unexpected occurrences in production (Lacomblez, 2001). There has been a change in perspective with respect to "traditional" training approaches, which considered the apprentice to be a receptor of knowledge that he would then apply. Nowadays, training increasingly sees the apprentice as the main actor in his learning, which he accomplishes by using the resources allocated to him. On the one hand, this perspective changes the instructor's role from a simple transmitter to a facilitator in the learning process (Cooper, Orrell and Bowden, 2010; Billet, 2002; Bellier, 2002). On the other hand, it grants more importance to the workplace as a learning site, since it allows the apprentice to be in direct contact with the resources required in work situations.

That being said, inserting training into a company's production process is rarely a simple affair since the training activity interacts with all the other activities. In Figure 1, we present a theoretical model drawn from Ouellet and Vézina (2009) which shows the determinants of the training activity. We

FIGURE 1

Theoretical Model of the Training Activity and its Determinants



Source: Adapté de Ouellet and Vézina (2009).

are borrowing the notion of "activity" used above for work and applying it to training. As such, the training activity corresponds to what the instructor puts into action to train apprentices while taking into account the conditions provided by the company.

In any training situation, there is an instructor and an apprentice who have their individual characteristics (gender, age, training, experience, culture, etc.). The former has been mandated to show a task, occupation, or trade to the latter, and this in a context where the production activity and the training activity interact. Bélanger and Robitaille (2008) noted that there are two types of training instructors in companies, namely internal and external. According to these authors, internal instructors can furthermore be divided into two groups: an *appointed instructor*, whose full-time responsibility is usually to develop management skills, and an *employee-instructor*, who has become a key worker in the company. These two types of internal instructors are experienced employees who are chosen by a superior (their foreman, manager, or human resources counsellor) to train their peers. They are chosen based on their technical and communication abilities (Bélanger, Larivière and Voyer, 2004). In the present study, these instructors are of the type *employee-instructors*, which we will herein refer to as *worker-instructors*.

The conditions for executing work activities (grey zone, Figure 1) can be used as workplace training and learning conditions. To these are added certain conditions related to the instruction activity (person in charge of training, etc.) which influence the learning conditions (availability of instructor, etc.). These conditions influence the instructor's ability to adapt his activity to learning needs. For example, when

production and training activities are conducted at one and the same time, the instructor must choose between his instruction responsibilities and production requirements. If a production problem arises (tools, raw material, etc.), he must work to resolve it, thereby making himself unavailable for an apprentice (Marchand, Lauzon and Pérès, 2007). The resources allocated to training dictate how much latitude an instructor has to adapt it. This latitude in turn affects the degree to which training objectives are reached and the instructor's physical and mental health, in particular his motivation to train and the meaning he attributes to the role.

Instructors need various skills if they are to successfully combine training with real work, most notably technical, operational, didactic, and relational skills, not to mention analytical skills for real-work situations (Balleux, 2000, Jobert, 1993). Given the importance of these skills, it is reasonable to ask whether *worker-instructors* themselves receive the necessary training that would allow them to develop these skills. Even though an exploratory study by Bélanger, Larivière and Voyer in 2004 showed that, in some companies, work-instructors received instruction on how to train others (knife-sharpening instructor in the agri-food sector), employees who are asked to do so are often unprepared (Balleux, 2002).

Based on the example of two worker-instructors, we will see, in the following sections, how the conditions determining the instructors' training activity influenced how training was incorporated into manual repetitive work. For the needs of this article, only the methodological elements that allow us to describe the instructors' situation are presented.

Methodology

The research intervention took place in a company which had slightly more than 300 unionized production employees, of which 25, all male, carried out the defatting and deboning of the meat. At the time of the study, the salary for this type of job in the sector was as high as $20 an hour. The overall approach employed in this study is briefly described here in order to put the methodology and results into context. The approach was comprised of two phases: the first consisted of analyzing the *work activity* of a group of experienced workers, which included the two deboning instructors, based on observations made in real work situations. The goal of this phase was to understand the tasks that new workers needed to learn and to put into words the knowledge of experienced workers so as to set them down in a training manual handed over to the company. As for the second phase, it involved the daily following of the *training activity* of the two worker-instructors so as to document both the transmission of occupational knowledge and the underlying training and learning conditions. Three groups of apprentices (n = 7) were given deboning training for 6 weeks each. After each group's training session was completed, recommendations were made to the

company in order to improve the learning conditions for the following group. The way in which these recommendations were implemented after group 1 – without any assistance from the ergonomist – was observed by the latter during the training of groups 2 and 3. Once it became obvious in the initial training days of group 3 that several recommendations that had been previously accepted by the follow-up committee (including the management) had not yet been implemented, the ergonomist began to take a more active role in monitoring the implementation of the recommendations. Among other things, the ergonomist worked to provide the instructors with support for their training activity.

During the first phase, we conducted individual interviews with the worker-instructors to learn about their career path and work experience. Training activity data were collected using pencil and paper during the continuous observation of training situations. The information concerned the following: 1) ways of organizing training; 2) training conditions (production requirements, training on or off the line, preparation time, technical and organizational resources, etc.); 3) the activities conducted by the instructor; 4) the difficulties encountered by the instructor; and 5) the instructor's perception of how well the training went. Furthermore, audio recordings (approximately 6 hours per day) were made for every day of training. This made it possible to know which type of knowledge among that already formalized in the first phase was communicated to the apprentices during their training (Ouellet and Vézina, 2009). As was previously mentioned, recommendations were made to the company at the end of each 6-week training session in order to improve conditions for the following training activities. Individual 45-minute meetings with each instructor and with each apprentice, as well as a 60-minute collective meeting with the instructors, and another with the apprentices, were held after each training session so as to better formulate these recommendations. The results will be described in the following sections concerning certain aspects of the training activity and the factors influencing it.

Results

This section presents the worker-instructors, the situational elements that influenced their training activity, and the difficulties they encountered during the activity.

Cutting Instructors: Who are They?

In the company under study, as in many others (Bélanger, Larivière and Voyer, 2004; Balleux, 2002), the instructors in the workplace were experienced workers who were recognized by their peers and management for their know-how at work. Table 1 shows the age and seniority of the two worker-instructors. It is noteworthy that the instructors were not necessarily chosen because they had the most seniority in the company.

TABLE 1
Characteristics of Deboning Instructors

	Age	Factory seniority	Deboning station seniority	Similar jobs in other companies
Instructor X	42	6.5 years	6.5 years	20 years
Instructor Y	34	12 years	8 years	None

Even though there was no formal selection process, the instructors were chosen by the management and union in accordance with criteria presented in Table 2. Once identified by the two parties, the instructors' interest in training was then verified. It is worth noting that three out of the five criteria were related to pedagogical abilities.

TABLE 2
Selection Criteria for Choosing Worker-Instructors

Types of skills	Criteria
Techniques	• Recognized manual abilities in deboning and steeling • Good knowledge of production operations
Pedagogical	• Good capacity to clearly and concisely communicate • Good teaching skills, i.e., ensure that the apprentice has correctly understood each training step, encourage him, know how to motivate him, set up training in a well-ordered way • Rigorousness and patience, setting high standards

The company had no official training plan for the instructors. The latter therefore never received training that allowed them to acquire knowledge about the learning process, various pedagogical methods, or principles for preventing musculoskeletal disorders, even though this was an important aspect in their type of work. There was no formal recognition of their instructor status. The worker-instructors gave training when necessary, and when they trained, they received the same pay as when they deboned. What is more, they were not always exempted from production activity requirements, especially when the apprentices were on the production line. The following sections describe the context in which they were asked to train apprentices.

The Requirements of the Task to be Learned

The task of deboning consists in cutting a piece of meat with a knife to take out the bones, which are then thrown on to the conveyor belt. This task is conducted in sequence on the production line. The workers must carry out a given processing step related to their workstation within a specified space on the moving conveyor so that they do not move into the space of a colleague down line. Workers

rotate from one workstation to another, which means that new workers must learn to carry out all the steps (sequences) in the processing of a piece of meat. Furthermore, cutting meat is a physically demanding task that requires several movements in the upper limbs that are repeated many times over during a work shift. Training a new worker in such a context does not solely mean helping him learn how to produce but also how to protect himself so that he can produce in the long-term. The instructor must pay particular attention to the movements carried out by apprentices, the postures they adopt, and the state of their knives so as to reduce the risk of musculoskeletal disorders. It is worth noting that this activity sector is one of the riskiest in Québec, particularly for MSDs. According to CSST data, abattoir workers (18.5%) and other workers in food and drink excluding abattoirs (14.7%) come respectively in second and third position as the most at risk occupational groups (CSST, 2007).

Training Management: What's Involved?

The participating company had no position exclusively reserved for managing training. This file was given to a person in the technical department who had several other responsibilities. The training file therefore became just another responsibility on top of an already considerable workload, despite this person's best intentions. Consequently, the instructors had to participate in the management of their training with their supervisor, who himself was already quite busy. For instance, the instructors had to plan their vacations several months in advance and identify someone to replace them. They likewise had to make sure that the necessary equipment was there for the training sessions and that the apprentices' technical needs were looked after. When a problem arose concerning certain training aspects (training organization, equipment maintenance, proper equipment, etc.), the instructor had to sometimes meet and discuss with several people, including the supervisor, production manager, person in charge of the training file, and union representative. These additional management tasks increased the instructors' responsibilities and, consequently, decreased the time they could devote to planning learning situations and accompanying apprentices.

There was no written training material that might have been used as a guide by the instructors; in fact, this need for a training material was behind the original request made by the company. As a result, the instructors communicated the knowledge that they had received from other workers or developed themselves. Moreover, with the exception of a brief meeting that was held between the two instructors before the beginning of the first training session to agree on certain points, no time was allocated during the work shifts to prepare learning situations. The worker-instructors had to plan their training situations "in the heat of the moment" or outside of work, and had to do it to the extent that their knowledge and experience as workers and instructors allowed.

Workplace Conditions and Organization of Training

The workplace and organizational conditions in which the training activity occurred are briefly described in the following paragraphs so as to make the activity's results easier to understand. As can be seen in Figure 2, the production and training activities came into contact in a room where production lines A, B, and C were found; all three lines were equipped with conveyor belts, the latter being intended for special products. Regular production was conducted on line A, but varied on line B as it was determined by the number of workers available during the day. As for production line C, it could be used for training (at the beginning), but was also used for processing special products that were in demand at certain periods of the year. It was therefore unusable for training at those times. Consequently, a static table (D) was set up to address the lack of a learning area. The layout of workstations C and D was quite different from that of the primary production line.

FIGURE 2
Layout of the Production Room

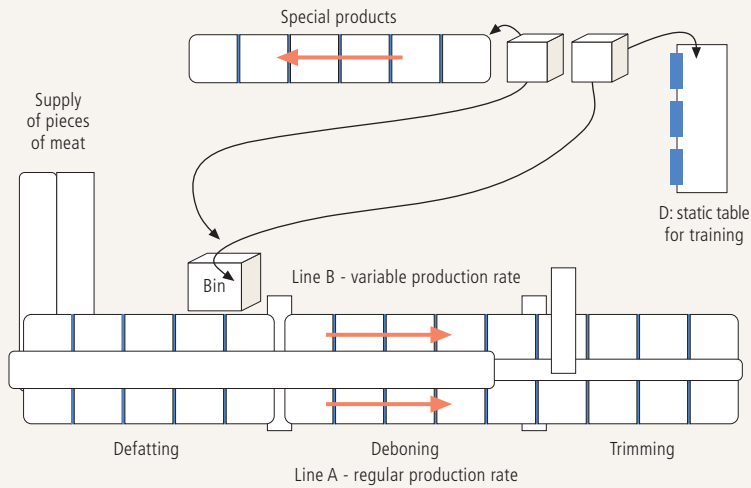
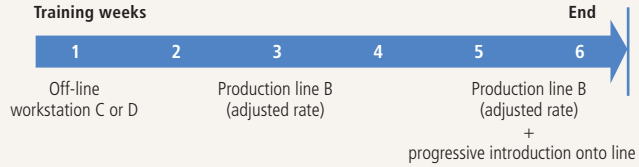


Figure 3 shows how training time was divided between the workstations. The first two weeks of the training session took place at workstations C and D, depending on the groups. During this period, neither the instructors nor the apprentices were subjected to a normal production rate, thereby giving them some latitude. However, a minimal level of quality had to be respected since the processed pieces of meat were added to the total daily production.

Once these two weeks were up, the training was moved to production line B where the cadence was determined by two factors, namely the number of

FIGURE 3
Organization of Training over Six Weeks



workers working on the same side and the apprentices' learning rate. During this period, the instructors were sometimes required to contribute to production and teach at the same time. During the last two weeks of training, the apprentices were progressively incorporated into the production line at an initial rate of 30 minutes per day, then half days, and finally full days before being officially hired for the job. The instructor/apprentice ratio was 1/3 for the first group and was reduced to ½ for the next two groups because the first ratio was considered to be too demanding for the instructors. Apprentices were not necessarily integrated into the production line at the same time, their integration depending on the level of learning achieved (through a performance evaluation). When one apprentice was being progressively integrated onto line A, the instructor had to divide his time between lines A and B.

Managing Training Conditions

The fact that the apprentices began to learn their task on an off-line workstation had the advantage of not subjecting them and the instructors to temporal production constraints and thereby giving the instructors some latitude in the organization of training situations. One of the important challenges that the instructors had to meet was ensuring that their colleagues on the production line helped to find pieces of meat that presented the characteristics needed for a planned teaching situation. For example, the instructors needed pieces of meat that had already been through a previous stage known as defatting. To obtain these pieces of meat, the instructors had to come to an agreement with the defatting operators so that the latter would put a defatted piece of meat into the bin (see Figure 2). The instructors thus had to move around frequently to manage the required raw material. All of this organization required that the work group participate in the training. In return, the regular deboning operators' workload was reduced because several pieces of meat were deboned by the apprentices, thereby reducing the cadence.

As previously mentioned, the layout of the off-line learning workstation was not representative of the layout of the regular workstations. As a result, when training occurred at the learning workstations, the instructors had to equip them

by making containers handy for the different parts taken from the processed pieces of meat. However, even though the instructors tried to set up learning workstations like those on the production line, it was impossible to do so, which had consequences for some apprentices when they transferred to the production line. With regard to their situation, one apprentice reported, after his first day of learning on the production line, that he had not found the transition physically difficult but rather mentally so. He had to constantly think before throwing a piece of meat to a place that was different from when he was on the off-line workstation. The reflexes developed at the beginning of the training had become a handicap. It is likewise noteworthy that, in the agri-food sector, there are very strict hygiene rules which require the daily cleaning of all the equipment in the production room. At the beginning of each shift, the instructors therefore had to take 10 to 15 minutes to set up the learning workstation, which they often did with the participation of other workers.

The apprentices used the same type of equipment as the other workers and encountered the same inconveniences as the latter when equipment was working poorly, as was the case, on certain occasions, with the knife sharpening machine. During the training activity, the instructors had to ensure that the apprentices had a sufficient number of well-sharpened knives. Regularly checking the knives' cutting quality and helping the apprentices to sharpen and steel their knives was part of the training activity. The deboning instructor therefore had to be skilled at knife sharpening and steeling to oversee the apprentices.

Training and Production: A Relationship Full of Obstacles

Workplace conditions are almost always thought up and conceived from a production angle, which can complicate incorporating the training activity into the production activity. Three examples given in the next paragraphs show how this production perspective had an impact on the instructors' activity.

First of all, the expectations and level of tolerance of the instructors' peers and managers concerning the quality of work accomplished by the beginner workers was sometimes a source of stress for both the learners and teachers. This was the case during our study: one instructor, who was trying reassure the apprentices about the time needed to reach an acceptable level of quality, had to deal with, at the same time, his colleagues' impatience when the apprentices were progressively brought onto production line B. Two or three apprentices felt considerable stress because the experienced workers criticized the quality of their work. Since the instructors were not granted any authority in matters of production, the supervisor had to come in and talk to the whole group to ask them to be understanding toward the apprentices.

Second, the instructors not only had to plan the learning situations in relation to the needs of the apprentices, but also, and even primarily, with regard to production needs. When the apprentices were integrated into production line B, the work rate depended on the number of workers on this side and, when possible, on the skill level of the new workers. When the instructors wanted to plan specific exercises to teach certain aspects of the task, they had to take into account the limits imposed by production requirements. For example, one of the apprentices was having more difficulty in a deboning task which consisted in taking out the femur. His instructor allowed him to practice this step on the production line for a whole day. To do so, the instructor had to reach an agreement with other workers to change the work rotation sequence so that this apprentice could remain at the same workstation.

Third, the instructors were sometimes unable to reach the learning objectives that they had set because of production situations. In the case before us, the instructors had to regularly try to convince their supervisor to adjust the rate on line B to the apprentices' skill level and to respect the initial six-week length of the deboning training session. There was an apprentice in the first group who finished his training before receiving the instructor's authorization to work on the regular line. This made the latter feel as though "he had done all that work for nothing," because he considered that the apprentice still needed to practice away from the regular production lines. A recommendation made to the company to not shorten the training sessions for the following groups was accepted.

One of the characteristics of the notion of a *task* is its explicit or implicit goal, which indicates to the apprentice the state or condition that he needs to achieve through an activity. During the training session, the instructors had to deal with the inconsistencies between the quality accepted in training and the quality required on the production line. In the company, the deboning evaluation criteria were not formalized. The expected result was verbalized in rather general terms such as "take out the bone from the piece of meat and leave the least meat possible on the bone (as white as possible) without damaging the meat." The instructors were told by their supervisor to ask the apprentices for a certain level of quality, whereas the latter had the impression that their instructors asked them for a higher quality of work than that which was tolerated on the production line. This grey zone in the expected result put the instructors in a situation where, whatever they required, they were open to criticism. If they required a high level of quality from the apprentices, the latter had trouble accepting it because they considered it to be unfair; if the instructors required less from the apprentices, they were criticized by their supervisor. A recommendation was therefore made to the company to clarify and formalize its quality criteria, which it attempted to do before the end of the study.

Discussion

Training in the Workplace: An Undervalued Role and Job

The advantage of using the workplace as a training site is that it allows apprentices to practise in a work-condition context. However, learners are very rarely taken into account when the specific objectives and conditions are originally planned (Illeris, 2011), which creates a considerable challenge for instructors. The observations made in the present study brought out the numerous facets that were part of a deboning instructor's role, namely: 1) setting up of the learning workstation at the beginning of each shift; 2) providing beginners with raw material that had the characteristics they needed and cleaning up the pieces of meat and remains that resulted from processing; 3) planning and organizing learning situations that took both learner and production needs into account; and 4) negotiating learning conditions (tools, speed, length of training). They thus had to play the role of a motivator, guide, organizer, planner, and negotiator in their training activity. So as to allow them to satisfactorily play their role at both the personal and professional levels, it would be advisable to set up mechanisms to support them in their training activities, namely: provide a teacher training session in the training program; provide a resource person who will have enough time to coordinate training activities and; give the instructors time to prepare their training when necessary.

In keeping with standard ergonomics research, we concentrated on the physical, workplace, and organizational conditions of the training activities. We have described a few situations above that are examples of group dynamics, but our analysis of these situations is limited. Since all work, whether or not it is manual, comprises both psycho-relational and technical aspects, in the large sense of these terms and the contribution of ergonomic and psycho-sociological approaches to the development of human resources in organizations could be complementary (Faulx and Petit, 2010). We see this as a possibility for future collaboration.

Training in the Workplace: Skills in Need of Development

Good teaching abilities are not just pulled out of a hat. Numerous authors agree that instructors are confronted with challenges and dilemmas that require particular skills (Marchand, Lauzon and Pérès, 2007; Balleux, 2002; Perrenoud, 1999; Jobert, 1993). Perrenoud (1999: 10) mentions, among other things, that "training is not a technical action. It involves paradoxes and contradictions that ensue from the fact that one must know when to intervene and when not to, when to explain or not, guide or trust, evaluate lucidly, and reinforce positively" (free translation). Some research has indicated the importance of giving instructors training to help them develop their pedagogical abilities (Masingue, 2009; Marchand, Lauzon

and Pérès, 2007). One exploratory study (Marchand, Lauzon and Pérès, 2007), which looked at training with ITCs (information and communication technology), noted during observations of mentor-apprentice pairing that instructors who had received pedagogical training were able to draw from more teaching methods at hand, were more flexible as teachers, and were able to deal better with the apprentices' different learning styles. It bears repeating that the instructors in the present study did not receive any pedagogical training.

In the participating company, as is the case in several other companies (Balleux, 2002; Cloutier *et al.*, 2002), training was given by experienced workers who were known for their know-how and ability to work fast. These instructors, who were considered to be experts, were asked to transmit knowledge to newcomers. Though they may have learned some knowledge through training, most of it was likely learned directly at their workstations as they tried to meet production demands and preserve their health at the same time. Asking them to train others without giving them the chance to prepare meant that it was taken for granted that they would naturally be able to put their knowledge into words in training situations. Studies have shown, however, just how difficult it can be for workers to formalize their ways of working when they are questioned on the subject (Teiger, 1996; Daniellou and Garrigou, 1995). Two factors might explain this difficulty: 1) the fact that some of their occupational knowledge has become unconscious over time due to reflexes developed in the activity (Leplat, 2005); 2) the fact that these workers have not already necessarily had the opportunity to formalize their knowledge to make it easier to transmit (Vézina *et al.*, 1999). On this topic, the present research shows that some types of knowledge were more difficult to transmit to apprentices than other types (see Ouellet and Vézina, 2009). This knowledge includes such things as: the reference points used by experienced workers (e.g., reference points indicating the depth of the blade), the goals of worker-instructors' movements, and the underlying reasons for these movements. The experienced workers' competency is based on this knowledge. We therefore believe that any training for instructors should begin with instructors undertaking an analysis of their own practices so that they will become conscious of knowledge that has become unconscious.

With regard to tasks described as "manual," it seems to us that the goal of training was not only to teach apprentices to "learn to produce" but, above all, "to learn to produce without hurting themselves" and "to learn to protect themselves in order to be able to produce in the long-term." The instructors in the present study did not receive any training concerning prevention, particularly concerning the prevention of musculoskeletal disorders. Training on these aspects could help instructors to better instruct new workers. What is more, the skills they developed in this field could provide the company with complementary resources in its prevention efforts, which constitute a substantial advantage.

Occupational Instructor: A Role in Need of Respect

The need to be acknowledged for one's contribution to an organization is present in every human being, especially in a context where productivity occupies a large place. In the present study, few measures were put in place to acknowledge the role of the instructors, who expressed the feeling that their work was not appreciated by their colleagues and management. Given the contribution they make to the development of an organization, it seems important to us to set up mechanisms that foster the acknowledgment of their role. The recognition of tutoring constitutes, moreover, one of the steps leading to quality training (Masingue, 2009). Various measures can be taken to positively reinforce the instructors' role, including: 1) frequent, personalized congratulations and thanks; 2) a clear definition of the responsibilities involved in training that is well known by all of the employees; 3) an official presentation of the employee's role as instructor; 4) a consultation procedure in which the instructors concerned are included when new course content is developed; 5) the wearing of distinctive signs (e.g., a safety helmet or shirt bearing the title "instructor"); and 6) time set aside for instructors to develop new course content or improve existing content (Masingue, 2009). It would seem, furthermore, that when instructors receive specific pedagogical training, it confers legitimacy on their role in the eyes of others (Marchand, Lauzon and Pérès, 2007).

Conclusion

Training involves creating a stimulating environment that allows apprentices to develop their capacity to take in the information needed to conduct a task (Bonnet and Bonnet, 2008). Accordingly, the workplace constitutes an interesting environment because it confronts the apprentice with learning situations set up in a specific work context. Nonetheless, our study pointed out that, to organize learning situations, instructors had to consider several conditions and choose between what they would have liked to do and what they could really do. We are of the opinion that the observations made in our study are not necessarily limited to manual work training and can serve as food for thought in the establishment of appropriate training conditions in other contexts.

Furthermore, even though there is little scientific knowledge on the impact that training conditions can have on the effectiveness of workplace instructors' teaching, there are certain promising avenues for future intervention. These avenues include: 1) hiring a person who is in charge of coordinating company training activities (establishment of training and learning conditions, training follow-up, evaluation of the training process and results); 2) giving the instructor access to training involving pedagogical aspects and an analysis of their own work practices; 3) recognizing the instructors' role and status; 4) providing instructors with the opportunity to prepare their training; and 5) making the necessary material available for training apprentices (equipment, training content, etc.).

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SUMMARY

Workplace Training: How Context Impacts on Instructors' Activities

In the present-day world of work, characterized by the globalization of markets and rapid technological change, company directors are turning toward new types of work organization and product diversification in order to contend with increasingly fierce competition. In such a context, workplace training has become a critical issue for companies. Though there are different types of workplace training, the instructors are usually experienced employees who have been asked to train new employees. Incorporating training into the company's production activities is complex because it creates a situation where the training activity comes into contact with all the other activities. The present article reports on ergonomic research intervention conducted in the meat processing sector which sheds light on the difficulties and challenges that structured training in an SME production system poses for instructors. The data collected here showed that worker-instructors were poorly prepared to train new workers and that the role of an instructor was not sufficiently appreciated in the company. Furthermore, our study pointed out that, to organize learning situations, instructors had to consider several conditions (organizational, technical, physical, and social) and make compromises between what they would have liked to do and what the conditions allowed them to do. Avenues for improvement are suggested to help create greater recognition of the instructors' role and provide them with more support in the implementation of training activities. The observations made in this study can serve as food for thought for anyone interested in workplace training conditions.

KEYWORDS: ergonomics, workplace training, training conditions, worker-instructor

RÉSUMÉ

Formation en milieu de travail: impact du contexte sur l'activité des formateurs

Dans le monde actuel du travail marqué par la mondialisation des marchés et le changement technologique rapide, les dirigeants d'entreprises se tournent vers de nouvelles formes d'organisation du travail et la diversification de leurs produits pour faire face à une compétition de plus en plus féroce. Dans un tel contexte, la formation au travail est devenue un enjeu crucial pour les organisations. Il existe diverses modalités d'organisation de la formation en entreprise pour lesquelles les formateurs sont habituellement les employés expérimentés qui reçoivent le mandat de former les nouveaux. Toutefois, l'insertion de la formation dans l'action productive de l'entreprise est complexe puisque qu'elle créé une réalité où l'activité de formation entre en relation avec toutes les autres activités ce qui peut compliquer la tâche des formateurs. Le présent article rend compte d'une recherche-intervention en ergonomie réalisée dans le secteur de la transformation de la viande qui a permis de mettre en évidence les défis et les difficultés que pose aux formateurs la mise en œuvre d'une formation structurée dans le système productif d'une PME. Les données recueillies montrent que les travailleurs-formateurs sont peu préparés à former et que le statut de formateur est peu valorisé dans l'entreprise. De plus, les résultats mettent en évidence que pour organiser des situations d'apprentissage, les formateurs ont dû agir sur plusieurs conditions (organisationnelles, techniques, physiques et sociales) en faisant des compromis entre ce qu'ils auraient souhaité faire et ce que ces conditions leurs permettaient de faire. Des pistes d'amélioration sont apportées pour valoriser la fonction de formateur et mieux les appuyer dans la mise en œuvre de leurs activités de formation. Les constats faits dans le cadre de cette étude peuvent être matière à réflexion pour quiconque s'intéresse aux conditions de formation en milieu de travail.

MOTS-CLÉS: ergonomie, formation au travail, conditions de formation, employé-formateur

RESUMEN

Formación en medio laboral: impacto del contexto sobre la actividad de los formadores

En el mundo laboral actual marcado por la mundialización de los mercados y el rápido cambio tecnológico, los dirigentes de empresas viran hacia las nuevas formas de organización de trabajo y la diversificación de sus productos para hacer frente a una competición cada vez más feroz. En tal contexto, la formación laboral se ha vuelto un desafío crucial para las organizaciones. Existen diversas modalidades de organización de la formación en empresa en las cuales los formadores son generalmente los empleados experimentados que reciben el mandato de formar

los nuevos. Sin embargo, la inserción de la formación en la acción productiva de la empresa es compleja pues ésta crea una realidad en la que la actividad de formación entra en relación con todas las otras actividades, lo que puede complicar la tarea de los formadores. El presente articulo rinde cuenta de una investigación – intervención en ergonomía realizada en el sector de la transformación de carne que ha permitido poner en evidencia los desafíos y las dificultades que se presentan a los formadores durante la implantación de una formación estructurada en el proceso productivo de una PME. Los datos colectados muestran que los trabajadores formadores son poco preparados a formar y que el estatuto de formador es poco valorizado en la empresa. Además, los resultados ponen en evidencia que para organizar las situaciones de aprendizaje, los formadores han debido actuar sobre varias condiciones (organizacionales, técnicas, físicas y sociales), haciendo compromisos entre lo que ellos hubieran querido hacer y lo que las condiciones les permitía hacer. Algunas pistas de mejora son propuestas para valorizar la función de formador y para apoyarlos mejor en la implantación de las actividades de formación. Las constataciones hechas en el marco de este estudio pueden ser materia de reflexión para quienquiera que se interese a las condiciones de formación en medio laboral.

PALABRAS CLAVES: formación laboral, condiciones de formación, empleado-formador