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The learning processes among employees in Swedish milk production: potentials to implement reflective learning

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Abstract

Purpose – This paper aims to explore the learning processes among employees on large dairy farms and investigates the potential for learning and employee-driven innovation (EDI) to contribute to sustainable dairy production from the perspectives of animal welfare, social responsibility and economic aspects.

Design/methodology/approach – Data were collected through semi-structured group interviews with employees on three large dairy farms in Sweden. The interview material was analysed qualitatively using thematic analysis and linked to theories on routinised and reflective learning at the workplace.

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Findings – Employee learning on large dairy farms was strongly related to the individual's work tasks and often took place in situations where the aim was to find a practical solution to maintain work routines. Learning in these agricultural settings was largely a social process. It was mostly based on the experiences of employees and colleagues, and focused on routinised learning rather than reflective learning.

Originality/value – This study examines the learning environment for employees on large dairy farms and suggests ways to develop reflective learning and EDI in this context. Further studies are required from both the advisor and farmer perspectives to comprehensively understand the learning dynamics in such agricultural settings, including the role of advisors and how they can contribute to reflective learning in the current context.

Keywords Dairy farm, Workplace learning, Employee-driven innovation, Routinised learning, Reflective learning, Animal welfare, Dairy employee

Paper type Research paper

Background

Structural change in swedish milk production

Over the past four decades, the Swedish dairy farming industry has undergone significant structural rationalisation. The number of dairy farms has decreased, while the remaining farms have expanded in both acreage and the number of cows on the farm (Martiin, 2024). The Swedish food strategy envisions that by 2030, agriculture will be even more efficient while at the same time sustainable according to environmental, social and economic principles managed efficiently and sustainably, according to environmental, social and economic principles (Regeringskansliet, 2019). The development of Swedish milk production has, over the past three decades, yielded favourable outcomes concerning climate impact and animal welfare but the results concerning economic and social sustainability have varied (Karlsson *et al.*, 2023). Structural rationalisation in Swedish dairy farming has led to changes in how and who performs the daily care of the cows. Consolidating smaller farms into larger units with more animals to care for has led to a growing need to employ staff (Martiin, 2024). In connection with the transition from family-run farms to agricultural enterprises with employed staff who carry out the daily care of the herd, new significant challenges arise for the farmer. The trend towards larger farms and the associated demands on management, leadership and human resource strategies (Nettle, 2018) as well as the importance of employees for successful production outcomes (Durst *et al.*, 2018) cannot be overlooked.

The current situation on large dairy farms

Staff on large dairy farms often have diverse educational backgrounds, work experience, cultural backgrounds and languages, which contribute to a more complex working situation (Sischo *et al.*, 2019). The Swedish dairy farming industry is currently experiencing difficulties in recruiting staff with the requisite vocational training (KSLA, 2023), which results in new employees entering the workforce with a wide range of prior knowledge and experience in animal care.

Modern dairy farms, with their large numbers of animals, operate with precise production requirements. Milk production depends on several factors, including animal health (Gross, 2022; Seegers *et al.*, 2003; Warnick *et al.*, 2001). Both health and productivity are influenced by how animals are handled and managed (De Vliegher, 2012; Schuster *et al.*, 2020). In large herds, daily work is characterised by the performance of numerous routine tasks such as milking, calf care and feeding. A vital routine is maintaining good hygiene during feeding and within the animals' environment (DeVries *et al.*, 2012). Implementing care routines facilitates the maintenance of continuity and uniformity in the delivery of animal care, which

is a desirable outcome (O'Brien *et al.*, 2012; Barragan *et al.*, 2016; Sun *et al.*, 2022). Implementing clear and functional routines mitigates the risk of care activities, pivotal for animal health, being conducted with excessive variation or being entirely neglected, which can have a detrimental impact on animal health (Johnsen *et al.*, 2019). The routine daily work with animals also contributes to the development of knowledge and skills of the animal caretakers. This experience-based knowledge generated in routine work can be tapped into and used through collaborative, reflective learning, contributing to increased knowledge and employee-driven innovation (EDI) and as Ellström (2010) and (Høyrup, 2012) posit, learning and innovation processes are inextricably linked.

The changing structure of today's dairy farms with employed staff places new demands on all actors to achieve set goals. In this context, employed staff can be an essential part of the development and innovation work on the farms. For this reason, it is beneficial to explore the learning processes among employees on dairy farms, as well as the potential for learning and EDI to contribute to achieving sustainable dairy production from the perspectives of animal welfare, social responsibility and economic aspects. This enables the identification of opportunities to enhance the well-being of the individual employee, the performance of dairy farms and the sustainability of milk production in Sweden.

Theoretical framework

Dairy farms are workplaces characterised by a high degree of routine work. To explore learning and the potential for developing EDI we have applied theories on routinised and reflective learning as a lens.

The following section presents the theoretical framework for the subsequent analysis and discussion.

Routinised learning and reflective learning in the workplace

Workplace learning is influenced by individual factors, such as personal conditions and behaviours, and organisational factors, including the activities and culture of the organisation (Ellström, 2005). Based on this, Ellström (1996, 2005, 2011) developed a model for the learning that takes place in workplaces. The model has informal learning as its starting point and is based on two different yet interconnected forms of learning: routinised learning and reflective learning.

The foundation of routinised learning lies in the establishment and reinforcement of workplace routines, shaped within the context of organisational knowledge and emotional and social structures (Ellström *et al.*, 1996). Routinised learning is linked to the individual's work tasks. It is defined as acquiring skills to enhance the ability to perform the work task accurately, efficiently and with minimal variation, which is in line with the performance of daily routines in a dairy herd. The actual learning takes place during the performance of routine tasks, which may also mean that the employee must learn to master similar tasks in varying situations. Working with live animals means that unusual and unexpected situations can arise very quickly and need to be dealt with as part of the daily routine. Routinised learning is linked to the handling and solving of problem situations that may arise in connection with the performance of routine work tasks, often answering the question "How?" (Ellström, 2005). For employees, routines can also provide a sense of security and control in their daily work, as well as they can be a tool for dealing with unexpected situations. Although most of workplace routines are related to individual tasks, they are created in a social context and contribute to shared norms and values. These shared values are an important part of animal care and management. There are also other effects of having stable routines in a workplace, it conserves energy and can thus offer mental relief to employees (Ellström,

2005), and in this specific context of dairy farms, routines are beneficial for animal health and well-being (Dufour *et al.*, 2011). However, some negative aspects of having very fixed routines exist, such as the disadvantage of excessively inflexible procedures contributing to the staff's reluctance to acknowledge the need for adaptation and improvement.

While routinised learning may be perceived as limiting, it can also serve as a prerequisite for developing reflective learning in the workplace. When routine tasks are performed without much cognitive effort, it creates time and opportunity for employees to engage in reflection (Høyrup, 2010). Reflective learning involves asking the questions "what" and "why" rather than "how", as in routinised learning (Ellström, 2005). The objective of reflective learning is not to provide an immediate solution to a problem but to define the problem and engage in a reflective process that can lead to new insights and change. Reflective learning involves questioning existing conditions, testing alternative approaches and reflecting on the outcomes (Ellström, 2011). This form of learning requires individuals to question established routines and mindsets, which can be demanding (Ellström *et al.*, 1996).

Different situations and learning processes demand different types of learning, and it is essential to notice that both routinised and reflective learning are crucial for fostering learning and development within the workplace (Ellström, 2011).

The relationship between the logic of production and the logic of development

Ellström (2005, 2011) not only presents a learning model but also elucidates organisational prerequisites and facilitators for learning at both the individual and organisational levels, according to the logic of production and the logic of development. Both logics reflect a distinct perspective on learning and how learning opportunities are created within the workplace. The logic of production is a learning paradigm driven by the pursuit of production and the enhancement of productivity. Its fundamental tenets include the pursuit of stability, standardisation and efficiency in task performance, as well as the identification of optimal practices for distinct work stages. Thus, routinised learning is closely aligned with the logic of production (Ellström, 2005). Although there may be some room for reflective thinking and variation, this is typically encouraged only if it benefits the routine performance of tasks. Large dairy farms can be considered workplaces strongly characterised by routines and an explicit production requirement that is thus related to the logic of production.

The logic of development is characterised by heterogeneity, reflection and the testing of alternative ways of working. In the short term, this logic does not favour production and production growth within an organisation. In this context, conditions are created to manage new and unknown situations. This approach can be considered necessary for successfully managing a changing environment. Workplaces characterised by the logic of development necessitate reflective learning. This questioning approach is based on previous knowledge gained through routinised learning. However, it also requires analytical thinking based on the goals of the activity and the opportunity for dialogue and participation in the workplace for reflective learning to occur. Furthermore, a workplace culture tolerant of differences and alternative approaches and permissive of the trial and error inherent in the learning process is conducive to the logic of development and fosters reflective learning (Ellström, 2011).

The logic of production is the dominant logic (Ellström (2005, 2011). To facilitate a logic of development, management must adopt a positive attitude towards reflective learning and provide opportunities for this type of learning. However, Ellström (2005) suggests that reflective learning occurs more subtly in many workplaces to address problems that arise in routine tasks. Thus, it is necessary to make this learning process visible so that developmental learning can become a recognisable part of workplace learning.

Employee-driven innovation

The concept of EDI can be brought into the discussion by considering the workplace not only as an activity where production takes place but also as a place for learning and development. The reason for that is that EDI involves integrating innovation with daily work processes and fostering workplace learning (Høyrup, 2012).

EDI processes may originate from problematic circumstances or suboptimal work routines encountered by employees during their daily tasks, specifically in executing work tasks. This discrepancy between implicit and explicit work processes is a key factor highlighted by Ellström (2010). The subsequent process is anchored in the learning that occurs in the workplace, encompassing both routinised and reflective learning. Consequently, the willingness and participation of the individual to engage in learning, as well as the conditions for learning in the workplace are significant factors in determining the presence and extent of EDI processes within an organisation (Lemmetty and Billet, 2023).

This study aims to explore the learning processes among employees on large dairy farms. It examines the potential for learning and EDI to contribute to sustainable dairy production from animal welfare, social responsibility and economic perspectives.

Methodology

Qualitative research

The study used a qualitative approach, which is appropriate for investigating knowledge based on individuals' different experiences and perspectives within a specific context (Yin, 2013). The methods used were semi-structured group interviews and qualitative data analysis. Qualitative interviews generate data through the interviewees' words, which offer insights into their life worlds and the specific experiences and actions that shape their perspectives (Kvale and Brinkmann, 2014). The use of group interviews is valuable for eliciting diverse perspectives on a given issue, in addition group interviews can be advantageous when there is a suspicion that more individuals will express themselves in a group setting than in individual interviews (Yin, 2013).

A qualitative group interview generates data through the participants' expressions, and it allows them to listen and respond to the thoughts and opinions of other group members. The semi-structured group interview format was deemed appropriate due to its capacity to facilitate a more open approach, contributing to a broader understanding of the topic, a deeper insight into the subject matter and the possibility of exchanging experiences. As Yin (2013) notes, however, one challenge in group interviews is ensuring that interviewees do not feel overlooked if undue attention is directed towards a single individual. This situation can present a challenge for the interviewer and thus requires special attention to be avoided.

Sampling

The selection of farms was based on a deliberate and conscious process and thus can be classified as a purposive sampling in qualitative research (Yin, 2013). The selected farms were required to be dairy farms with employed staff caring for the animals. They were located within a geographically limited area, allowing for data collection through multiple interviews. The size of the farms varied as follows: Farm A had 550 dairy cows, Farm B had 770 dairy cows, and Farm C had 800 dairy cows. The farms were selected in 2022 and were followed by individual interviews in a study concerning animal well-being and its impact on farmer and employee well-being (Axelsson *et al.*, 2024). The group interviews conducted in the present study constituted interviews with participants from the three selected farms.

The criterion-based selection of farms may limit the validity of the study. The importance of having as broad a sample as possible is emphasised by Yin (2013). To mitigate the risk of

bias, all animal caretakers were invited to participate in the interviews to obtain as comprehensive and diverse a sample as possible. All participants received written and verbal information about the study and were asked to hand in a signed consent form.

Data collection

The data collection process was initiated in the autumn of 2023. Prior to the commencement of the interviews, an interview guide was created. The form comprised two sections: the first addressed knowledge, and the second learning. Fifteen employees were interviewed on four separate occasions, divided into four groups. One group of four employees from farm A, one group of four employees from farm B and two groups of three and four employees from farm C were interviewed. One group interview was conducted with the assistance of a Polish-speaking interpreter due to language difficulties.

The semi-structured interviews were conducted in the staff rooms on the respective farms. The duration of the interviews ranged from 52 to 94 min. All group interviews were recorded and transcribed into separate Word documents. During transcription, the interviews were anonymised and given a specific code. According to the Swedish Research Council (2017), the confidentiality requirement was met as all responses were treated confidentially, and personal data was managed according to the Swedish University of Agricultural Sciences' data handling policy, in compliance with current General Data Protection Regulation legislation. To ensure anonymity, the audio files were de-identified and anonymised.

Data analysis

The interview material was subjected to qualitative analysis employing the thematic analysis technique (Bryman and Nilsson, 2018), which was linked to theories of workplace learning (Ellström *et al.*, 1996; Ellström, 2005, 2011). The text material from the group interviews was read through several times; five domains linked to knowledge and learning were created based on this reading. The material was then re-read, and in connection with these five domains, meaningful units within the text were linked to each of these five domains. These meaningful units, which consist of longer sections of text, were then condensed to capture the text's core message and the condensed material created five categories linked to learning in dairy farms as a workplace. Three overarching themes were created based on all categories and considering the context. These three themes were then used to analyse workplace learning and highlight opportunities for development in workplace learning in this context. The analysis was initiated by applying Ellström's (2005, 2011) theory of routinised and reflective learning.

The selection of Ellström's theoretical model was predicated on the premise that dairy farms with several employees can be conceptualised as workplaces with a profound need for routines that contribute to the well-being of animals, thus having a positive impact on the job satisfaction of employees and the farmer (Axelsson *et al.*, 2024). This, in turn, has a cascading effect on attaining production goals. The development of routines in the workplace is facilitated by establishing clear and explicit objectives (Ellström, 2005). The complexity and standardisation of tasks may vary, as may the degree of autonomy afforded to employees. These factors collectively determine the potential for learning to occur in the workplace (Ellström, 2005). However, Ellström's (2005, 2011) theory of reflective learning provides opportunities to introduce a form of workplace learning in which the different knowledge and skills that employees have acquired through routinised learning can form the basis for shared reflection in workplace learning.

Ethical considerations

The Ethical Review of Research Involving Human Subjects Act (SFS 2003:460) approved an ethics application for this data collection (No. 2021–05686 - 01). Data collection also adhered to SLU's guidelines regarding data management. All participants received written and oral information, and written consent was obtained from each participant.

Findings

The findings are presented based on the three themes that emerged from the qualitative data analysis of the interview material:

(1) What motivates the employee to learn on dairy farms?

(2) How does the employee learn in their daily work?

(3) When does learning take place on dairy farms?

What motivates the employee to learn on dairy farms?

In our study, we found that the employee's learning related strongly to each individual's work tasks, which were dependent on the organisation of the specific farm. Many tasks performed on a milking farm strive towards standardisation to contribute to the well-being of the animals. Common examples of work tasks are milking, feeding and taking care of calves. Most of the tasks performed by the employees were daily routines or routines with varying intervals. One employee reflected on the knowledge and skills she has acquired in her current role:

> Previously, on other farms, I only milked cows. When I started working on this farm, I learned how to take care of the calves. How to take care of newborn calves, how we feed them and give them medicine if necessary. Yes, everything that had to do with the care of the calves.

In addition, the findings indicated that much of the knowledge acquired by employees in the working situation was often unplanned. Sudden and unexpected situations in daily work tasks often triggered a learning process. The primary goal in these situations was to find a practical solution as quickly as possible to continue with their work tasks and maintain the caring procedures for the cows. Thus, what employees learned was often shaped by the needs of the business. However, it was not only the needs of the business that had an impact on what the employees had to learn. The employees' interests and ambitions were essential to what they learned in the workplace. One reason for employees to develop knowledge and skills was the aspiration to work autonomously in both routine tasks and unexpected situations. The informants indicated that autonomy had a positive impact on their self-esteem. One employee described the sense of autonomy:

> Yes, autonomy, it is important for your self-esteem, to be able to manage by yourself. Both when you have to make decisions or do tasks by yourself. It's always nice not to be dependent on others.

The knowledge required for employees to act autonomously was strongly associated with the work tasks they were supposed to perform based on the specific needs of the particular farm. Furthermore, the study highlighted the importance of not only knowing how to perform a work task but also understanding why certain tasks should be performed in a specific way and being able to make informed decisions concerning animal health. Contributing to animal health was essential in developing knowledge and capability concerning work performance and decision-making. One employee described:

> To take care of the animals and be able to do […]. instead of waiting for answers from others. To know, so you can do it directly yourself.

How does the employee learn in daily work?

The study revealed that much of the employee learning occurs within a social context of the workplace. The employees sought knowledge from individuals they trusted and believed or knew had more knowledge and experience. The employees mainly learned from each other; however, on some occasions, the farmer served as the primary source of knowledge and expertise. The extent to which colleagues or the farmer constituted a source of knowledge differed between the farms in the study. Given that the learning occurred in a social context, relationships with colleagues were essential to the learning process. The informants expressed that trust in each other was of great importance in creating a positive climate in the workgroup and thus facilitating learning in the work situation. The trust between colleagues was founded upon the professional skills of more experienced colleagues and their attitude towards teaching. If a more experienced colleague acts with ridicule towards the other person's ignorance, the employee will not experience a learning situation based on trust. The importance of a socially safe environment was emphasised, as it gave employees the courage to ask questions and thus reveal areas where they sought to improve their understanding.

Learning often took place in social contexts when the employees were working together. Such learning mainly involved explaining how to perform the work task. In these instances, the more experienced colleague would show how the task should be done. This was often followed by the employee performing the task. Performing a new task was essential for the informants in the learning process. Doing so gave the employees knowledge of how to do it and helped them remember how to perform it. Simply receiving an oral explanation was deemed insufficient. The combination of watching, listening and having the opportunity to perform the work task is of great importance to individual learning. One employee described the best way to learn at the workplace as follows:

> If I only get the information orally, it goes in one ear and out the other. The best way is to work with someone else on the new task, so you can ask questions and try it out while working together.

However, not all learning occurrs in a social context. A learning process could also occur when the employee has to solve a problem independently. Hence, the employee relies on previous experience and knowledge and tries different ways of solving the problem or finding the best solution for performing the task based on individual circumstances.

In addition, the informants expressed how the learning process was affected by lack of time and stressful situations. These factors had a negative impact on the possibilities for learning.

When does learning take place on dairy farms?

The study revealed that learning opportunities were continuous and particularly significant when the employees came to the farm as newcomers. Learning within daily routines was often linked to an unexpected problem that must solved before continuing daily work. These learning occasions were unplanned in timing and content, significantly influencing the learning situation. Examples of such unexpected situations included illness among the animals, requiring the veterinarian to be called or technical issues involving the milking robot, where a service technician had to help solve complex problems. These external experts contributed to the employee's learning process. One employee articulated:

> That is why I follow the veterinarian – to learn as much as possible. When she is here, I ask her a lot about the specific disease or diseases generally to learn as much as possible.

Learning in the context of problem solving did not always require external expertise. Problems encountered in daily work with the animals could also be resolved together with the help of a more experienced colleague who served as the expert in those situations. Colleagues helping each other was a common form of social learning on the farms. The importance of colleagues for learning is described by one of the employees:

> You learn most things from everyone else you work with all the time. Everyone knows different things and is good at different things.

The second prominent opportunity for learning identified in the study was when a new employee was introduced and became part of the working community on the farm. Learning processes then focused primarily on the new employee's job-specific tasks and routines to meet the business's needs as quickly as possible. In these circumstances, the learning was routinised based on the experience of colleagues who explained and demonstrated how to perform routine tasks. The new employee learned by first watching and then doing the tasks. Depending on the differences between the farms, on some occasions, the farmer served as the source of knowledge. One employee offered the following description:

> The first thing I learned was how to milk, and it was O who taught me all about milking. Then, I learned the other tasks from the others who have worked here. In the beginning, they showed me the simple tasks. I looked at how others work, and they told me and showed me how to do it. In that way, I have learned more and more tasks, so now, after 1.5 years, I can work entirely independently and take care of everything.

Another aspect highlighted in situations with new employees was that they could have knowledge and experience that might benefit the existing organisation, provided there is room for questioning and reflection, elements often restricted under the conditions of routinised learning.

To conclude, the analysis of the three themes, namely what, how and when, indicated that the predominant mode of learning in the workplace was routinised learning but also problem-solving among the employees. Shared reflective learning on an organisational level was not present in the material. This fact provides a foundation for exploring the possibilities for the development of shared reflective learning on large dairy farms.

Discussion

Routinised learning in the context of dairy farms

The study revealed that learning opportunities on large dairy farms are closely associated with daily work and the employees' continued work, individually and collectively. It was also observed that learning based on established routines and best practices to maintain stability in animal care represents a primary focus in this context. This focus aligns with the logic of production, whereby routines and uniformity in executing work tasks are employed to establish the conditions necessary for achieving production goals. However, routines are not only beneficial for reaching goals of production; they are essential within the domain of animal husbandry (Barkema *et al.*, 2015; Barragan *et al.*, 2016). A significant proportion of the tasks performed in a dairy herd are characterised by an effort to standardise practices as much as possible to ensure optimal welfare for the animals – for example, the standardised routines associated with milking and feeding (Sun *et al.*, 2022). Hence, the structural change of milk production from small to large dairy farms has contributed to developing more structured routines (Hesse *et al.*, 2017) and, thus, the conditions for routinised learning.

The routinised learning that occurs in routine work affects production goals, animal welfare and employee capability. According to the informants, there is a strong desire to have the knowledge and skills to perform their tasks independently and to make informed decisions linked to the welfare of the animals in the work situation. The employees can achieve this state of independence by performing routine tasks as they develop their skills, contributing to their learning and fostering greater independence in the workplace (Molander, 2016). Furthermore, the increased capability provides a foundation for effectively addressing unexpected situations that arise in the context of the work tasks (Ellström, 2005). Our study demonstrates this in the context of the animals' daily care. In unanticipated circumstances arising in the context of the animal's daily care, learning occurs based on the individual's existing knowledge and experience and through social interactions where the insights of colleagues or the farmer contribute to and influence the learning process. In such learning situations, the main objective is to identify practical solutions employees can implement promptly, enabling the completion of the task and the maintenance of the management routines while at the same time strengthening the employee's competence. The fact that the employees experience the feeling of being able to perform the tasks with control and autonomy has a positive effect on their learning (Taris *et al.*, 2003). It is not only essential to know how to perform a task and do it independently. It is also necessary for the employee to understand why tasks should be performed in a certain way. Therefore, learning that only answers the question of how is insufficient; it must also answer why to contribute to a sense of meaningfulness for the employees Milligan (2016).

There is no doubt that the logic of production (Ellström, 2005) affects the learning situation on large dairy farms in a restrictive way. There are limitations regarding opportunities for joint reflections for employees and testing and evaluating options due to a lack of time and organisational conditions. Nevertheless, in this context of large dairy farms, the logic of production also provides the conditions for routinised learning and skills enhancement.

The social context and routinised learning on dairy farms

The learning observed in our study was of a social variety, aligning with Ellström's (2005) perspective that a workplace comprises multiple employees who collectively shape a work community. This community serves as the foundation for teamwork and learning within the workplace. Developing relationships with colleagues was identified as a critical factor in facilitating learning, and the informants indicated that trust and confidence are crucial for establishing a positive work environment. Which, in turn, facilitates effective learning. The importance of psychological safety among employees for learning within groups at the workplace is in line with findings from previous studies (Pinheiro *et al.*, 2023; Frazier *et al.*, 2017). Therefore, it is important to consider the social context when discussing workplace learning and how to develop it. In our study, one unambiguous and particular learning occasion closely linked to the logic of production and routinised learning occurred when newly hired staff were introduced and became part of the work community. In these situations, learning occurs through the implementation of work tasks in joint work and individual work situations, facilitated by what Billet (2014) describes as mimetic processes. These mimetic processes entail observing and imitating colleagues as they perform work tasks. In our study, this mimetic process was an essential initial step in the learning process for employees, particularly during continuous learning and for new employees. How well the experienced colleague performs the routine task can affect the result of the mimetic process.

Large dairy farms are characterised by the logic of production, with precise requirements for efficiency and production, which can have a negative impact on learning processes. Some

factors limit learning in the workplace; stressful situations and a lack of time are examples of such factors. The pressure for efficiency can be stressful for individual employees, as they are expected to learn and perform work tasks as quickly as possible to maintain routines and production. Ellström (2010) emphasises that routinised learning is primarily based on standardisation, efficiency and consensus, noting that there is little time or space for questioning and reflection during the learning process. Moreover, it was observed that new employees might possess knowledge and experience that could benefit the existing organisation if there were opportunities for questioning and reflection, which were often not provided in conditions of routinised learning. These factors indicate the limitations of routinised learning. Therefore, to develop workplace learning, the workplace needs to be organised for learning, not just for production (Billet, 2004).

Potentials for reflective learning on large dairy farms

In our study, we observed that learning based on established routines and best practices to maintain stability in animal care represents a primary focus. However, despite this, there are reasons to adopt a more expansive perspective and foster an environment conducive to questioning, reflection and learning in the workplace. According to Cofre-Bravo *et al.* (2018), staff involvement in reflective learning represents a crucial aspect of the farmer's innovation process. A further reason for developing reflective learning and EDI is to benefit from and develop the knowledge employees have acquired through routinised learning in their daily work. The optimal situation for this type of workplace is that workplace learning can encompass both reflective and routinised learning, with the capacity to switch between the two based on individual and organisational needs (Ellström, 2005, 2011). Learning processes are necessary for EDI to be realised in the workplace, and if there is no learning, there is no possibility for EDI (Ellström, 2010; Lemmety and Billet, 2023).

A key finding of the study was the willingness of individual employees to participate and develop their knowledge and skills, both in the tasks they were already performing and in learning new tasks. Lemmetty and Billet (2023) emphasise the importance of these findings on participation and willingness for workplace learning tooccur. In this context, the driving force, or a cause for learning, was a desire to contribute to animal welfare. Such motivating factors are described by Fuller *et al.* (2018) as essential underlying elements in work and learning processes. In addition, the importance of employee learning is supported by the fact that learning results in positive outcomes, such as better handling and care of animals, increased production and improved animal well-being (Hemsworth, 2003). Ultimately, it is not only the well-being of the animals that benefits but also employee job satisfaction and the farmer who will benefit from the learning and knowledge development opportunities that promote animal well-being (Axelsson *et al.*, 2024). However, it is not only the willingness of employees to learn and develop their skills that is crucial to creating a workplace that enables collaborative and reflective learning. Given that routinised and reflective learning processes occur under disparate circumstances, creating conditions for them to interact in the workplace is crucial. Developing reflective learning requires long-term efforts and, as Lidman *et al.* (2023) emphasise, the ambition to create an environment with opportunities for such learning. It cannot be emphasised enough how important it is for management to establish both practical conditions and an open learning environment if the desired production outcomes are to be attained (Martin *et al.*, 2018). Establishing a reflective learning environment is contingent upon an open and permissive climate within the staff group and the farm manager's perspective. The results highlight the importance of a socially safe environment where a feeling of trust is essential. As an employer, adopting a permissive attitude towards differing opinions, promoting and encouraging a reflective approach can

help create a favourable learning culture (Ellström *et al.*, 1996; Cangialosi *et al.*, 2020), which requires a flexible leadership style based on the various learning processes.

Routinised learning requires leadership that provides the conditions for stable routines. Conversely, fostering reflective learning necessitates leadership that encourages divergent thinking, disrupting entrenched cognitive structures and discourses (Wallo *et al.*, 2022). Therefore, leadership in the workplace has a vital role in creating conditions for reflective learning (Avby, 2016). While a significant portion of learning in the workplace is based on experience, reflective learning necessitates an analytical approach to the situation. However, this can occasionally result in employees needing more knowledge and time for reflection to engage in such an analysis. In such cases, it may be necessary to supplement the existing knowledge base with external input to facilitate analysis during the learning process through structured training or joint reflection led by a facilitator (Avby, 2016). In this context, agricultural advisors can be facilitators, contributing new or alternative knowledge and thus stimulating reflective learning processes. Creating opportunities for interactions and communication among individuals with diverse competencies and experiences can create an environment that encourages exchanging experiences and learning (Illeris, 2011).

To use the employees' experience-based knowledge and create conditions for EDI the learning focus needs to be broadened. It is important to find a balance between routinised and reflective learning, which, according to Ellström (2005, 2011), is the most optimal in this type of workplace. From a sole focus on learning related to routines and achieving production goals to shared learning based on existing problems, the farmer's leadership enables joint learning and the advisor's knowledge contributes to new insights.

Conclusion

The learning that most often occurs among employees on large dairy farms is characterised by routinised learning linked to tasks related to the animals' daily care. This learning process is based on problem-solving strategies adapted to the farm's specific needs, especially in maintaining the routine animal care and milk production activities. Furthermore, animal welfare and employees' desire for autonomy in their work influenced individual learning. Several potential pathways for future learning development emerge from the theoretical model of routinised learning, reflective learning and EDI. Building on employees' experiential knowledge and adding external and new knowledge creates opportunities for shared reflective learning in the workplace. In this context, advisory organisations can provide new and relevant, valuable knowledge and support for reflective learning at the workplace. In addition to providing new knowledge, the employer needs to create a learning environment where employees are given practical opportunities for reflective learning. Further knowledge from the advisors and the farmers perspectives is needed to understand the complete learning situation at large dairy farms and the potential for reflective learning and EDI on these farms. Future studies include investigating the role of advisors and how they can contribute to joint reflective learning in the current context, thereby contributing to sustainable production (both socially, including animal welfare and economically) for individual employees and dairy farms as a business.

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