Article

Enabling Transformative Learning in the Workplace: An Educative Research Intervention

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Abstract
The aim of this article is to discuss the potential of an educative research intervention to influence the quality of the learning outcome in the workplace as interpreted from the perspectives of adult learning theory. The research project was designed as a quasi-experimental, mixed-methods study. In this article, quantitative survey data were taken as the point of departure, and qualitative data were used for the purpose of analyzing aspects of learning. An educative research intervention may support a transformative learning quality when the manager and employees have to deal with severe difficulties, and they succeed in doing so by sharing responsibilities and having the strength to engage in the development process in the workplace. It is possible to support transformative learning in the workplace through an educative research intervention that encourages managers to educate themselves and their employees to think and act in new ways, aiming at integrated autonomy, increased interaction, and learning.

Keywords
transformative learning, enabling leadership, research intervention, workplace learning, integrated autonomy

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In working life, the preconditions for carrying out work tasks are becoming increasingly complex and the task of managers equally difficult (Backström, Döös, & Wilhelmson, 2006; Nicolaides & McCallum, 2013; Walker & Gunnlaugson, 2011). The postindustrial work system cannot be planned, managed, and controlled by one person—the manager alone cannot coordinate all activities (Backström, Wilhelmson, Åteg, Köping Olsson, & Moström Åberg, 2011; Streatfield, 2001). To address this problem, a research project was conducted that aimed to influence first-line managers' leadership qualities in an enabling direction (Backström, Moström Åberg, Köping Olsson, Wilhelmson, & Åteg, 2013). The central purpose of the project, in its entirety, was to investigate whether and how first-line managers, when supported by an educative research intervention, can develop an enabling managerial approach. This involves providing conditions for and influencing interaction, learning, and integrated autonomy at the workplace. Integrated autonomy implies that employees have the ability to take on responsibility and make decisions concerning their own work tasks that are in line with the overall aim of the business (Backström, et al., 2013). The main results, on an aggregated level, have been reported elsewhere (Backström, et al., 2013). In this article, it is the learning potential of the educative research intervention that is highlighted. Here, educative research intervention means the activities the researchers took on to influence first-line managers to develop their leadership task in an enabling direction toward their employees. Thus, the main conclusion in this article concerns the possibilities to use adult learning theory to understand the learning potential of an educative research intervention.

Research on the outcome of leadership training mostly concerns skills acquired by participating leaders, such as improved critical reflective thinking, collaboration, and communication skills (Black & Earnest, 2009; Choy, 2009; Ciporen, 2010; Closs & Antonello, 2011; McGurk, 2010; Watkins, Marsick, Faller, & Hill, 2011), and being more globally minded, innovative, change oriented, and strategic (Watkins et al., 2011). Management training, in interventions, seems to have a positive impact on managerial behavioral change (Avolio, Reichard, Hannah, Walumbwa, & Chan, 2009; Taylor, Taylor, & Russ-Eft, 2009), and Theorell, Emdad, Arnetz, and Weingarten (2001) found it possible to improve the work environment for employees by means of a manager program that aimed to improve managers' psychological insight and communication. Yet few studies mention how outcomes of leadership training affect the employees or the organization; most studies investigate the participating managers' own responses at the end of a development program (Nyberg, 2008). The research project that is reported here measured change between assessment surveys made by the employees, before and after an educative research intervention in which their managers took part. The quality of the learning process was analyzed on the basis of qualitative data emanating from the managers. Thus, quantitative survey data were taken as the point of departure, and qualitative data were used for the purpose of analyzing aspects of learning.

The aim of this article is to discuss the potential of an educative research intervention to influence the quality of the learning outcome, as interpreted from the

perspectives of adult learning theory. How is it possible to make an impact on the learning not only of the managers but also of their employees by educating the managers? This question is in line with the suggestion from Choy (2009) and Taylor (2007) that research on fostering transformative learning (TL) in informal, educative settings is needed, particularly in contextualized settings such as in groups at the workplace (Taylor, 2007).

Theoretical Foundation and Main Concepts

The theoretical foundation chosen is transformative learning theory as developed by Mezirow (Mezirow, 1991, 2000, 2009a, 2009b) in the TL theory and as interpreted from a constructivist approach to adult learning (Bourgeois, 2002). Some core concepts are used when analyzing the data to interpret the *preconditions for learning*, namely, disorienting dilemma, cognitive conflict, motivation, and supportive context. To interpret the differences in the *quality of learning*, the core concepts chosen are assimilative learning, cumulative learning, and epochal TL. These concepts have been chosen for two reasons, namely, they are central to the theories used and they make sense in relation to the data itself.

A *disorienting dilemma* (Mezirow, 1991) is the very starting point of a learning process. It is some profound difficulty, often caused by external demands that cannot be ignored, and is thus a force for change. This disorienting dilemma creates a state of disequilibrium concerning assumptions earlier taken for granted, so it is a catalyst for change in perspectives and meanings. A *cognitive conflict* (Bourgeois, 2002) is thus created, often followed by critical self-reflection (Mezirow, 1991) and feelings of insecurity. The cognitive conflict concerns intrapersonal feelings of discomfort. To be able to deal with the dilemma and the conflict, *motivation* is needed to be able to engage in a learning process (Bourgeois, 2002). When learning is perceived as threatening to an identity a person wants to hold on to, motivation for learning will be low. However, when learning is perceived as liberating a person from an identity he or she does not want to hold on to, motivation will be high. Thus, fear of change and desire for change drive intrapersonal forces for dealing with cognitive conflict (Bourgeois, 2002). A *supportive context* may enhance the possibility of finding ways to critically self-reflect on identity and of finding motivation to deal with the cognitive conflict (Bourgeois, 2002). According to Taylor and Jarecke (2009), there is a delicate balancing act between challenge and comfort to push someone to the "learning edge." A feeling of security in interpersonal relations can support a transitional space where the learner can "overcome her resistance to change" (Bourgeois, 2002, 147). Those ingredients (disorienting dilemma, cognitive conflict, motivation, and supportive context) are crucial in the transformative process that Mezirow (2009b, p. 19) presents as 10 steps of learning: (1) A disorienting dilemma; (2) Self-examination; (3) A critical assessment of assumptions; (4) Recognition of a connection between one's discontent and the process of transformation; (5) Exploration of options for new roles, relationships, and action; (6) Planning a course of

action; (7) Acquiring knowledge and skills for implementing one's plan; (8) Provisional trying-out of new roles; (9) Building competence and self-confidence in new roles and relationships; and (10) A reintegration into one's life on the basis of conditions dictated by one's new perspective. When following this process of learning, new ways of thinking are developed and the mind-set changes (Mezirow, 2009b).

The quality of learning can have an *assimilative* character if the disorienting dilemma is not experienced as a cognitive conflict; in this case, a broadening and deepening of existing ways of understanding takes place: "The individual incorporates the new information she is confronted with" (Bourgeois, 2002, p. 135). But when the cognitive conflict occurs, the learning process has an accommodative (Bourgeois, 2002) or *epochal* character of perspective transformation of the frame of reference, consisting of points of view and habits of mind (Mezirow, 2000). Accommodation of old frames of reference triggers new ways of acting, and a change in behavior can be seen. New ways of acting are to be seen as signs of TL. Also, new ways of acting can be the result of *cumulative* TL, described as "a progressive sequence of insights resulting in changes in points of view and leading to a transformation in habit of mind" (Mezirow, 2009a, p. 94).

The Project and the Method

In this section, the research project, the participating workplace cases (wpcs), and the analytical method are described. The workplaces were chosen to represent large and small enterprises, as well as private and public ones. In all, 15 workplaces, their 18 first-line managers, and more than 300 employees participated in the study. Each manager and his or her employees are regarded here as one wpc.

The research project was designed as a quasi-experimental, mixed-methods study, close to action research, and it took place between 2008 and 2011. The project consisted of several parts: Survey assessments by the employees were made before and after an educative intervention when managers took part in a learning network arranged by the researchers. The learning network consisted of eight workshops held over a period of 1 year, during which the managers met with each other and the researchers once a month. The workshops concerned subjects such as learning dialogue, balanced communication, attractive work, and integrated autonomy. Each workshop consisted of three parts, namely, (1) Joint reflection on learning tasks that had been undertaken by the managers since the last workshop; (2) The researchers presented results from the employee pre-assessments and the theoretical underpinnings along with illuminative practices; and (3) The managers created new learning tasks for themselves to undertake during the following month. Thus, the workshops developed into communities of learning where the managers developed knowledge based on theory that was connected to the preassessment results in a critically reflective and empathic atmosphere (see Backström et al., 2013). Most of the managers

Table 1. Research Tasks and the Data That Were Generated.

Year	Research tasks	Data
2008	• Develop content and mutual understanding within the research group. • Establish contact with workplaces and managers for research cooperation.	
2009 spring	• Pre-assessment survey with employees in 15 workplaces. Three questionnaires: dialogue competence, integrated autonomy, and attractive work. • Observation and video recordings of communication patterns at one employee meeting at each workplace.	• Survey data: employee pre-assessments • Videotapes, partly transcribed
2009 fall 2010 spring	• Educative research intervention: eight learning network meetings/workshops with 18 first-line managers from 15 workplaces. • Manager questionnaires: creativity, and external relations.	• Manager reflection notes • Researcher field notes • Survey data: manager questionnaires
2010 fall	• Postassessment survey with employees in 15 workplaces. Three questionnaires: dialogue competence, integrated autonomy, and attractive work. • 18 individual manager interviews.	• Survey data: employee postassessment • Interview recordings, transcribed verbatim

attended most of the workshops. The educative research intervention aimed at influencing, teaching, and training the managers to be able (in the enabling leadership), in their turn, to influence, teach, and train their employees to develop abilities of integrated autonomy, increased interaction, and learning.

The research project generated quantitative as well as qualitative data (see Table 1). The quantitative data emanated from employee assessment surveys made 6 months before and 6 months after the manager workshops (see Appendix for a short presentation). The qualitative data consisted of videotaped and partly transcribed observations of workplace meetings; field notes made during the workshops; and reflection notes written by the managers between workshops concerning their learning task. Interviews with the managers were carried out and transcribed after the workshops ended. It is these qualitative data that form the empirical body that is used to interpret the quality of learning in each wpc in this article.

The wpcs were ranked and clustered according to the level of change between the pre- and postassessment surveys (see Table 2). This ranking was supposed to reveal the learning quality resulting from the educative research intervention; a high degree of positive change was assumed to indicate a high degree of learning among the employees.

Table 2. Participating Workplaces in Order of the Level of Change Between the Pre- and Postassessment Surveys, and the Clusters of Workplace Cases That are Presented in the Findings section.

Cluster	Ranking	Sector	Organization	Managers	Employees (approximately)
Dramatic positive change	1	Private	Car industry	1 Man	25 Equal men–women
Major positive change	2	Public	Government authority	1 Woman	20 Mostly women
	3	Public	Government authority	1 Woman	25 Mostly women
	4	Private	Bank	1 Man	10 Mostly men
	5	Public	Health care	1 Woman	10 Mostly women
Moderate positive change	6	Public	Health care	1 Woman	30 Mostly women
	7	Private	Bank	1 Woman, 1 man	10 Mostly women
	8	Private	Manufacturing industry	1 Woman	15 Mostly women
	9	Public	Health care	2 Women	60 Mostly women
Minor/no change	10	Private	Real estate service company	1 Woman	15 Equal men–women
	11	Public	Municipality	1 Man	45 Mostly men
	12	Public	Municipality	1 Man	10 Equal men–women
	13	Private	Car industry	1 Man	20 Mostly men
	14	Public	Government authority	1 Woman	20 Mostly women
Negative change	15	Private	Health service company	2 Women	20 Equal men–women

Note. The number of employees varied over time (See Appendix for an account of mean values and the t-value).

Data Analysis

The analysis was made with data triangulation (Patton, 2002) to interpret the quality of learning at each wpc at a time. Thus, all the qualitative data (observations, field notes, manager notes, and interview transcriptions), from one wpc at a time, were analyzed simultaneously. In an initial analytical step, the data were searched for descriptions of experiences of preconditions for learning. The core theoretical concepts were used as sensitizing concepts to search for the preconditions for learning, for the managers as well as for the employees, in the following way:

- Disorienting dilemmas were generated from profound difficulties, contextual factors, as described by the managers. Problems in the workplace often emanated from external pressure of some kind that the manager and employees had to deal with and thus experienced on an individual level as well.
- Cognitive conflicts were interpreted as causing critical reflection and critical self reflection, revealing an experience of difficulties and discomfort in dealing with a disorienting dilemma.
- Motivation concerned the interest in taking part in the research project, for managers to use the educative intervention to develop enabling leadership and for employees to develop interaction skills, learning, and integrated autonomy in their workplace.
- Supportive contexts in the workplaces were considered to consist of trustful relations, as well as the time and space to take part in the research project.

Next, the analysis focused on whether new ways of thinking or acting could be traced in the qualitative data for each wpc, and what quality of learning this change implicated. The core theoretical concepts were used as sensitizing concepts to search for the learning quality, for the managers as well as for the employees, in the following way:

- Assimilative learning was seen as a broadening of existing ways of thinking but not generating any new ways of acting; it was not interpreted as transformative in character.
- Cumulative learning was seen as a gradually transformative experience, changing ways of thinking and acting stepwise.
- Epochal learning was seen as an overwhelmingly transformative experience, changing profound values and causing radical new actions.

To keep track of the analytical findings and to get an overview of the preconditions for learning and the quality of learning at each wpc, a matrix was used (see Table 3).

Findings and Analysis

In this section, the findings are presented to assess the prospects for learning quality within each of the five clusters. In each cluster, the analysis of the preconditions for learning and the quality of learning is presented, for the managers as well as for the employees, mainly from a managerial perspective, since most of the qualitative data were generated from the managers and in interaction with the managers in the workshops.

Cluster 1. Dramatic Positive Change

The wpc in Cluster 1 is a "blue-collar" car industry that had been suffering from a severe recession. After 1½ years, the future was once again more promising; for

Table 3. The Matrix Used to Analyze the Qualitative Data to Interpret the Learning Quality at Each Workplace Case.

Agents at Each Workplace Case	Disorienting Dilemma?	Cognitive Conflict?	Motivation?	Supportive Context?	Learning Quality?
Manager	Yes or no	Yes or no	Yes or no	Yes or no	No or assimilative or cumulative or epochal
Employees	Yes or no	Yes or no	Yes or no	Yes or no	No or assimilative or cumulative or epochal

Note. Each workplace case was categorized in accordance with the sensitizing concepts.

example, employees were being rehired. The manager in this wpc reluctantly used the educative research intervention since it suited the collective culture at the workplace, he said.

Preconditions for learning in Cluster 1. In this wpc, the manager's disorienting dilemma and cognitive conflict originated in that he was forced into lowering his managerial position; consequently, he had to adjust to the expectations of the employees, he said. He was motivated to participate in the educative research intervention since it corresponded to the way he had to act as a manager; the workshops were one of many sources that contributed to his major change, he claimed. He also got support from the management and the human resources department in how to handle malfunctioning workgroups and reported that he talked a lot with his own boss concerning personnel issues in an investigatory mode. The employees' disorienting dilemma and cognitive conflict originated in the harsh times and in the new production system they had to learn, which created a great deal of frustration. According to the manager, some of the employees were motivated to change their ways of working, but not all. But when he stood up for his demands, they developed new competencies over time, he said. In that way, the employees were confronted and supported by the manager to learn new ways of thinking and acting.

Quality of learning in Cluster 1. Our interpretation is that both the manager and the employees experienced an epochal TL process, mainly thanks to the way they reacted to the demands put on them in harsh times. The manager forced himself and the employees into a TL process and said that he had to develop a new mode of thinking that was completely different from the authoritarian ways he was used to. He needed courage to communicate and to make everyone focus on the common goal, although he was insecure about what the reactions would be. As a first-line manager, he had to learn how to handle informal leaders and

an ineffective workplace culture, he said. He also had to develop new ways of acting: to ''lay back''; to present ideas and ask for others' opinions; as well as elaborate on others' ideas. At the time of the interview, the manager seemed to be in the middle of a cognitive conflict and a TL process of his own. He still did not believe in consensus leadership, he said, although that was what he had been developing. According to the manager, the employees also had to think and act in new ways, such as taking joint responsibility, cooperating with each other, meeting higher performance demands, learning new methods, producing the foundations for decision making, creating a team spirit, and daring to voice their opinions in meetings. All of these taken together seem to have forced the employees in a TL direction.

Cluster 2. Major Positive Change

The second cluster consists of four wpcs: two insurance authorities, one office of a bank and one medical care service. All of them, except one, were in the middle of a crisis or reorganization. Those four wpcs were similar in that their managers actively used the educative research intervention to enhance their own managerial abilities and to educate their employees in interaction, learning, and integrated autonomy skills.

Preconditions for learning in Cluster 2. Two of the managers within this cluster did not experience any disorienting dilemmas themselves, according to our interpretation, but two did, and those dilemmas concerned factors such as lack of managerial experience or too little time for managerial tasks. One of the managers realized the existence of poor communicative habits and ways of interacting through the survey assessment data reported in the workshops; thus, her own vague feeling that something was wrong was confirmed, she said. Two of the managers experienced a cognitive conflict emanating from the dilemma: for example, balancing the demands of the organization with the competence of the employees, or discovering a deficiency in oneself, such as initiating change too quickly. All managers were highly motivated to use the support offered by the educative research intervention, using all the exercises they had learned to make their employees take responsibility at work in general and to actively participate in meetings. The intervention was also actively used by the managers to learn about leadership, and it supported them in intervening to change the workplace culture in the direction of more cooperation, interaction, learning, and integrated autonomy. Some of the managers also had a supportive relationship with their own bosses, who became interested in the research project and the efforts made by the managers.

All employees at those wpcs were likely to have felt a disorienting dilemma, according to our interpretation, mainly due to demands put on them by the managers. The managers described actions such as involving the employees in strategic issues

and making them take on a higher degree of collective responsibility. The possibilities to influence work processes had increased and the older employees in particular found this extremely difficult, one manager said. Those dilemmas also generated cognitive conflict among employees; such dilemmas included being challenged to act in a uniform manner in an individual task, taking on totally new tasks or being dialogical and cooperative instead of self-asserting. Thus, the employees were confronted and motivated to develop new competencies by the managers. Managers and their employees worked together to purposely develop their mode of interaction to create supportive relations. Together, managers and employees planned new courses of action and learned to support each other in developing new interaction habits.

Quality of learning in Cluster 2. When analyzing the wpcs from an adult learning perspective, the preconditions for TL were present. Two managers were interpreted as having experienced cumulative TL. Step-by-step, they developed a new understanding of dialogue, of the importance of listening and being clear, and of new ways of acting and involving employees in reaching the organization's goals. The other two managers were interpreted as having experienced a sudden epochal TL, such as learning to be critically self-reflective about the managerial role, resulting in a higher degree of self-awareness. As a result, work and meetings were organized in new ways. The managers acted strongly to change group dynamics to be more dialogical and cooperative, for example, by creating time and space for informal meetings and assigning development tasks to teams chosen by workmates.

The employees, according to our interpretation, were forced into a process of epochal TL to tackle difficult work tasks demanded by their managers. Thus, employees learned to participate in developing the services of the organization and to take collective responsibility and influence ways of working. Employees were, for example, challenged in their habits of working individually and competitively and took on new ways of being collectively responsible, interacting, and developing new ideas for change. The employees also gained knowledge about communication by participating in exercises led by the managers, in which they had to pay special attention to their communicative habits.

Cluster 3. Moderate Positive Change

The third cluster consists of four wpcs: two health care units, one office of a bank and one customer support unit. Those wpcs were mostly manned by females and varied a good deal in size. Some of them were stable while others had just gone through hard times and found themselves in a competitive situation where fewer employees were supposed to do a more effective job. The managers in this cluster said they tried to use the new knowledge from the workshops but met contextual hindrances, and the employees were only somewhat affected. The contextual hindrances were of

different kinds, such as being geographically dispersed or having a heavy workload, which left little opportunity for interaction.

Preconditions for learning in Cluster 3. The managers at the workplaces within this cluster described various degrees of disorienting dilemmas. At stable workplaces, where problems seemed manageable, the managers did not feel disoriented and did not experience any cognitive conflict. Also, the more experienced the managers were, the less they seemed to be disturbed by problematic situations. Disorienting dilemmas at other workplaces concerned such matters as new demands to increase profitability and meet with more clients; changing ways of working while not getting enough time to support employees and being newly appointed and only working part-time as a manager, sharing first-line managerial tasks with another person and being in-and-out of charge—all of which caused a cognitive conflict. All the managers seemed to be motivated to make use of the educative research intervention and the new knowledge they acquired. Some of them demanded that their employees should communicate better and participate and act with more openness at work. Some of them used the intervention mostly for the benefit of their own thinking and never reached out to actively influence their employees. Most managers seemed to have support in their undertakings.

Most of the employees at the workplaces in this cluster probably experienced a disorienting dilemma, either due to their manager's new demands or because of the heavy workload and lack of time for reflection. This caused a cognitive conflict for some of them, but not for others. According to the managers, some employees experienced a high degree of stress due to the new demands and some did not, depending on how well they coped with the demands. At all the workplaces in this cluster, some of the employees seemed to be motivated to take part in the different kinds of changes the managers initiated, while others did not. At the large health care unit, employees did not notice the research project much, so it did not cause any cognitive conflict or motivate any change. Yet at most workplaces in this cluster, there was a high degree of support and trust between the employees, the managers said.

Quality of learning in Cluster 3. In this cluster, some managers seem to have experienced cumulative TL, for example, when finding the workshops interesting and supportive and when trying to implement integrated autonomy among employees. Managers' new thinking concerned employees' increased participation and communication in the workplace as well as focusing on the importance of their own way of communicating; this led to measures such as emphasizing the importance of clarity in communication, the distribution of responsibility in the work group, and finding collective answers through group communication. The managers who seem to have experienced assimilative learning said they were strengthened in their own ways of thinking about how to make people

grow, for example, by focusing on communicating and organizing; learning how to think strategically on a long-term basis; and making the employees share their experience at meetings and support each other at meetings with clients.

Some of the employees may have experienced cumulative TL when ways of communicating and working were developed in a more open and integrated way, for example, a team appointed by their fellow workmates devising a new action plan on the initiative of the manager. In this way, some employees were trained to reflect more deeply on the work tasks in a more dialogical way than before. Some employees, according to the managers, took on a greater responsibility for, and interest in, the workplace, such as developing new ways of cooperative working or educating each other to avoid frustration caused by lack of knowledge. But most employees in this cluster probably experienced an assimilative learning caused by the managers' reflections on their tasks and roles, which might have supported the employees in various ways.

Cluster 4. Minor/No Change

The fourth cluster consists of five wpcs: two private enterprises, two local community entities and one government authority. At all the wpcs but one, some kind of crisis was ongoing. The managers displayed a low degree of interest in the workshops and a low degree of motivation to use the ideas in their managerial tasks or were facing major difficulties and resistance to change from their employees.

Preconditions for learning in Cluster 4. All the managers in this cluster except one described disorienting dilemmas such as handling cuts and redundancies, being newly appointed, or being young and inexperienced as managers. Two of the managers also seem to have experienced cognitive conflict when confronting employees with new demands to take on more responsibility or improve conflict resolution. In this cluster, only one manager was motivated to make use of the research project, getting support and feeling confident when implementing an organizational change. He said he wanted to develop value-based leadership by encouraging autonomous responsibility grounded in common values with his employees. The motivation to use the research project was weak in the other managers and they also lacked support to make use of it. One of them was more or less forced to join the educative research intervention, having inherited it from a former manager.

At all wpcs except one, we interpret that the employees experienced a disorienting dilemma and cognitive conflict. In one case, the conflict concerned handling allowances to the public and being criticized in the media for how this was done; in their everyday work tasks, they then had to face citizens who were annoyed. One manager said he made use of the new knowledge by demanding new ways of working with a higher degree of responsibility at individual and team levels. The motivation to take part in those new ways of working differed

among employees, this manager said; some took on the challenge, but certainly not all. At the rest of the workplaces, the educative research intervention seems to have been used only to a small degree and the employees probably never noticed that their managers were taking part in it. At one small enterprise, a high degree of support existed at the workplace, according to the manager. At the other workplaces in this cluster, no traces of a supportive context for change could be detected in the data.

Quality of learning in Cluster 4. Some of the managers were influenced in the direction of assimilative learning according to our interpretation, but the employees seemed not to have been affected at all. The managers who experienced an assimilative learning process said they were supported by the workshops, for example, learning about the importance of integration, and then organizing activities to strengthen the feeling of unity at the workplace. At other workplaces, the educative research intervention did not cause any learning, either in the manager or in the employees, due to lack of motivation on the part of the managers. In one case, the employees might have found themselves in the middle of a troublesome learning process, with feelings of resistance to new collective ways of working due to reorganization into teams.

Cluster 5. Negative Change

Many major changes had occurred in the wpc that constitutes the fifth cluster: the transition from being a public authority to having to survive in a competitive market, the loss of an important customer, the loss of one of the two managers, and cuts and reorganizations; in addition, a new merger was about to take place in the near future. The two managers worked in shared leadership and were highly engaged in the educative research intervention, using it for their own competence development as well as for fostering development in the workplace generally.

Preconditions for learning in Cluster 5. The managers and their employees in the fifth cluster faced a continuous disorienting dilemma that had to be handled; they all had to adapt to competition in various ways as their jobs were at stake, the managers said. The managers experienced cognitive conflict in different ways. One of them discovered during the workshops that she did not want to be a manager anymore, due to deepened self-understanding. The other manager then had to take on all the managerial tasks, which she found hard to do on her own. Both managers said they were highly motivated to make use of the workshops as a support to continue the process of adapting to external demands.

   The employees also seem to have experienced a disorienting dilemma as well as a cognitive conflict, being forced to adjust to the new circumstances and to demands from the managers. In addition, conflicts between different, highly educated professions were an obstacle to teamwork, as well as some individuals being dominant at meetings. The ability to develop communicative competence was one of the

demands managers placed on all staff, since it was a core competence in relation to customers. The managers wanted employees to work in teams, to be creative, innovative, and to develop new, efficient ways of working. This may have motivated some of the employees, but probably not everyone. The managers said they experienced support in the workplace but conflicts between employees may indicate that support was partly lacking.

Quality of learning in Cluster 5. Our interpretation is that the managers themselves experienced cumulative and epochal TL. They said they learned about communication, dialogue, and their own ways of communicating. They learned to balance between structure and firmness, driving through issues they believed in but maintaining a sensitive ear. One of them learned she did not want to be a manager anymore, going through a "metamorphosis," she said. The other manager said she was strengthened by the workshops in her ambition to enhance integrated autonomy among her employees, which we presume caused cumulative TL on her part.

What learning process, then, can be said to have taken place among the employees? According to the survey assessment, a negative change was taking place, although on a high level (highest mean value in the pre-assessment and second highest in the post-assessment, see Table 1 in Appendix), indicating a *low degree of learning*. The changes may have been too demanding of the employees and the demands continued. We might have found them in the middle of a cognitive conflict and an ongoing struggle in the learning process, mostly experiencing difficulties.

Discussion

Learning processes are continually ongoing in workplaces. External and internal demands have to be handled by managers and employees, so different workplaces are in different phases of learning processes when trying to meet these demands. A research project such as the one described in this article can affect the quality of learning in workplaces in different ways, depending on the contextual conditions. In this section, we discuss the qualities of learning and learning outcomes that were eventually generated by the educative research intervention, as analyzed from the perspectives of adult learning theory. For this purpose, we rely on the steps of the TL process as developed by Mezirow (2009b).

In the cases when *no learning* can be traced, the educative research intervention was either not put into practice by the managers, as in most workplaces in Cluster 4, or the pressure for change was maybe too large to cope with, as in Cluster 5. In Cluster 5, it seems that a struggle was going on and that high expectations of interaction competencies made employees highly self-critical when assessing their own and each other's abilities. In Cluster 4, there was no motivation or support to take on the learning task. Those workplaces got stuck in the disorienting dilemma and did not progress any further.

When assimilative learning was found in the data, it was related either to disorienting dilemmas and cognitive conflicts not being acted upon or to the absence of disorienting dilemmas that would otherwise disturb ways of thinking and acting. Managers who experienced assimilative learning in the educative research intervention either found support for their own thinking or they were not motivated to take on any challenge; either way, they were not pushed to the learning edge and never took the first self-examining and critically assessing steps on the TL ladder.

When cumulative TL was found, the managers and employees, in a mutual process, over time, developed new understandings and ways of doing things. Managers took on ideas from the educative research intervention and tried them out on their employees, and the employees responded in various ways; thus the managers explored more deeply what the new understandings really meant in practice. Going to the next workshop and getting new knowledge made the managers embark on a learning cycle in which employees responded and knowledge correspondingly grew among them all. In some cases, a cumulative learning process on the part of the manager seems to have resulted in an epochal learning process for the employees who were pushed to their learning edge and forced to explore new roles, relationships, and actions, as related by the managers.

When epochal TL was found, managers and employees took on the disorienting dilemma, struggled with the cognitive conflict, got past the first steps of the TL process, and rebuilt their capacities as the learning process advanced, according to our interpretation. The managers challenged themselves and their employees in a more dramatic way than in the case of cumulative TL, making clear demands as to how to communicate and interact.

The ranking of the wpcs according to the level of change between the pre- and postassessment surveys (see Appendix) was supposed to reveal the learning quality resulting from the educative research intervention. How is this assumption to be understood in the light of the analysis presented earlier? At the workplaces in Clusters 2 and 3, where the quantitative assessment showed a positive change, a congruency between the ranking and the qualitative data can be seen. The educative research intervention had an impact on the learning processes of both managers and employees. Also, in Cluster 4, the quantitative assessment and qualitative data mostly go in the same direction; that is to say, the managers did not use the research project, nothing changed at the workplaces, and a low degree of learning occurred. In those cases, the assumption was confirmed.

The situation gets more complicated when analyzing the workplaces in Clusters 1 and 5. The assessment survey results and the qualitative data, on some points, go in different directions. In the first cluster, the assessment shows a dramatic increase—learning seems to have taken place among the employees. The manager interview also points in this direction concerning the employees but not when it comes to the manager himself. The wpc in Cluster 5 shows the opposite, implying that no learning opportunities for employees existed, but the managers described

large learning opportunities for themselves. How come? Our interpretation is that learning was ongoing at those wpcs but was caught in a phase of struggle, with feelings of loss and uncertainty. In Cluster 1, it was the manager, and in Cluster 5, it was the employees who were in the middle of critically assessing their assumptions, perhaps also recognizing a connection between their discontent and the process of transformation. Thus we assume that a negative change in the assessment does not necessarily imply a loss of learning possibilities but rather a struggle in the learning process that has an impact on how competence and abilities are perceived at that moment. In other words, there is not always (but sometimes) a causal connection between the difference between the pre- and postassessment surveys and the learning quality, as was assumed. The learning process, especially a transformative one, has painful phases that have to be taken into consideration when analyzing learning quality caused by educative research interventions in workplaces.

So what is the contribution to the discussion of the potential of an educative research intervention to influence the quality of the learning outcome, as interpreted from the perspectives of adult learning theory? How is it possible to make an impact on the learning of the managers as well as their employees by educating the managers? We have learned that an educative research intervention that encourages managers to educate themselves and their employees to think and act in new ways may well support qualities of TL—when the manager and employees have to deal with severe difficulties and they succeed in doing so by sharing responsibilities and the strength to engage themselves in the development process in the workplace. External forces for change, experienced as cognitive conflicts, and high motivation to change are engines for TL. The stepwise education toward enabling leadership in the workshops encouraged several of the managers to act firmly and confidently toward their employees, pushing them all toward a learning edge concerning integrated autonomy, increased interaction, and learning. A learning-oriented leadership was thus developed. To manage in this direction, theoretical as well as practical skills were needed: The skill to understand human behavior and the preconditions for learning, the skill to listen and support employees in their everyday work struggles, and the skill to be a role model and take a stand when it comes to healthy workplace communication and interaction habits. Time and place for interaction to occur are also essential factors.

In sum, an educative research intervention, involving first-line managers, may support a TL quality in the workplace when:

- an external force for change is at hand—a reason to learn—when experienced as a cognitive conflict;
- the problematic issues are important and manageable;
- time and place for interaction are available, for managers as well as for employees;

- a learning network is created by the managers—for the managers, where open and critically reflective reasoning is taking place;
- new and relevant knowledge (e.g., concerning integrated autonomy, interaction, and learning) is offered to managers;
- managers are motivated and interested in acquiring and using the new knowledge;
- managers develop their understanding of their managerial task (e.g., in an enabling direction) and act accordingly in relation to the employees;
- employees are motivated and interested in using new knowledge and act accordingly in relation to the manager and fellow workmates; and
- employees develop their understanding of their task as co-workers (e.g., in a responsible direction) and act accordingly in relation to the manager and fellow workmates.

Thus, lessons can be learned for educators aiming at supporting TL qualities in leadership training. For instance, it seems important to understand the impact of contextual factors on the learning outcome and to make this an issue during for example, leadership workshops. Also, being aware of such aspects as disorienting dilemmas, cognitive conflicts, motivation, and a supportive context might support educators as well as participants to better understand the learning process they are creating and taking part in. Especially, if the aim of leadership training is to support TL qualities, such awareness seems crucial.

This study has mainly used data from managers to interpret the quality of learning for themselves as well as for their employees; this is a limitation. In future research, the conclusions made in this article could be developed by also listening to, and integrating, the experiences of the employees themselves. Tracing conditions for TL in working life and producing actionable knowledge is useful in the postindustrial society where both managers and employees have to adapt and learn to cope with continuous change.

Appendix

The figures concerning pre- and postassessment in Table A1 are aggregated from three questionnaires focusing on attractive work, dialogue competence, and integrated autonomy. Factor analyses (Principal Axis Factoring with rotation) was made on each questionnaire to reduce data (17 scales were generated based on 247 questionnaire questions/statements). The questionnaires were given to all employees at each workplace case, so even small changes in mean values are significant. The impact of the educative research intervention was analyzed by comparing means from the pre- and postassessment surveys, using the *t*-test as an indicator of the strength of change. The workplace cases were ranked from 1 to 15 and grouped together into five clusters. The survey assessment results are further presented in Backström et al. (2013).

Table A1. The Mean Value of the 17 Scales in the Pre- and Postassessment Surveys is presented for Each Workplace.

Cluster	Workplace Case	Mean Values in Preassessment	Mean Values in Postassessment	Change Between Pre- and Postassessment; *t*-Value
Dramatic positive change	1	3.15 (n = 16)	3.72 (n = 25)	2.14
Major positive change	2	3.24 (n = 16)	3.46 (n = 19)	0.96
	3	3.50 (n = 16)	3.65 (n = 22)	0.91
	4	3.50 (n = 8)	3.73 (n = 9)	0.76
	5	3.50 (n = 8)	3.68 (n = 9)	0.65
Moderate positive change	6	3.56 (n = 28)	3.65 (n = 26)	0.49
	7	3.66 (n = 10)	3.74 (n = 7)	0.46
	8	3.43 (n = 11)	3.54 (n = 14)	0.40
	9	3.49 (n = 13)	3.61 (n = 35)	0.29
Minor/no change	10	3.66 (n = 12)	3.71 (n = 14)	0.17
	11	3.52 (n = 26)	3.58 (n = 31)	0.13
	12	3.56 (n = 6)	3.61 (n = 8)	0.11
	13	3.44 (n = 17)	3.47 (n = 13)	0.07
	14	3.41 (n = 15)	3.41 (n = 19)	−0.09
Negative change	15	3.9 (n = 12)	3.73 (n = 15)	−0.63

Note. The amount of change is measured according to the *t*-value; n is the number of respondents at each workplace case in the pre- and postassessment surveys.

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The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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