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Modeling Work-Related Learning on the Basis of Intentionality and Developmental Relatedness: A Noneducational Perspective

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A model of work-related learning based on intentionality and developmental relatedness is proposed here. A shift is called for from an educational perspective on work-related learning to a noneducational perspective in which learning is construed as largely implicit and spontaneous. That is, work-related learning can happen both deliberately and spontaneously as direct or indirect result of work-related interactions. Work-related learning often occurs in messy real-life situations, is influenced by various power and social relations, and results in individual learning outcomes as well as shared understandings. The proposed model can help human resource development professionals better understand how learning and work are interrelated. It can also help such professionals take individual and work characteristics more carefully into consideration.

Keywords: *work-related learning; noneducational perspective; intentionality; developmental relatedness*

Different kinds of workplace learning have been described, and various classifications or typologies have been developed: learning on the job versus learning off the job, incidental versus informal learning, implicit versus explicit learning, and learner-controlled versus other-controlled learning (Candy, 1991; De Jong, 1991; Eraut, 2000; Marsick, 1987; Marsick & Watkins, 1990; Thijssen, 1988; Van Onna, 1985). As can be seen, these typologies are based on learner control, place of learning, involvement of a pedagogical authority, or some other dimension of workplace learning. According to Colley, Hodkinson, and Malcolm (2002), typologies in gen-

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eral are strongly influenced by the context within which and/or for which the definitions or typologies were developed, the purpose of the author, and the deeper theoretical and values orientation.

Simons, van der Linden, and Duffy (2000), for instance, developed a typology based on the extent to which learners play an active role and direct their learning. The choice for the role of the learner was related to the increased recognition of the importance of and need for life-long learning and learning organizations as a result of rapidly changing societies and economies. They argue for instruction models that facilitate generic learning outcomes such as learning, thinking, collaboration, and regulation skills and constitute a new balance between three ways of learning: guided learning, experiential learning, and self-directed learning¹ (see also Doornbos & Krak, 2001).

For guided learning, a trainer or teacher makes all of the relevant decisions and the learner follows these. The trainer or teacher decides on the learning goals, the learning strategies, and how to measure learning outcomes. The trainer or teacher also provides evaluation, feedback, and rewards. The learner commits himself or herself to the decisions made and follows the trainer or teacher.

For experiential learning, it is not so much a teacher or trainer or even predetermined goals that control the learning but rather circumstances, personal motives, the ideas of others, discoveries, experiments, and so forth. Learning is a side effect of the activities one undertakes, and an explicit set of learning goals simply does not exist.

For self-directed learning, the learner plays an active and explicit role in the learning process and the determination of learning goals. Learning stands central and is not, thus, a side effect. Self-directed learning is also not preorganized and preplanned by a trainer, teacher, or some other expert. Self-directed learning is self-organized and self-planned. And reflection plays an important role in finding out what was learned and what still needs to be learned (Benjamin, 2001). In other words, learners define their own goals and strategies. And the capacity of the learner to manage the learning process is emphasized.

In previously conducted interview research, we explored how Dutch police officers learn at work in terms of the different types of learning distinguished above (Doornbos & Krak, 2001). We encountered some problems and difficulties with the conceptualization of learning at work that triggered us to reflect on modeling work-related learning. The purpose of the interview study was to gain insight into the learning experiences during the course of their daily work. Interviews regarding actual learning events and subsequent changes in knowledge, skills, or attitudes were conducted with police officers from different parts of the country and in different stages of their careers. Questions regarding the type of work situations that contrib-

uted to the learning outcome gave insight into the role of learner control so that we could label them as guided, experiential, or self-directed. The findings indicated that many examples of experiential learning were encountered with only a few examples of guided and self-directed learning. Even on a microbehavioral level of analysis, in almost 50% of the cases examined, the experiential learning type was not pure but was mixed up with both guided and self-directed learning. The learning of an individual could begin, for instance, experientially but receive guidance at a later point. Our conclusion was that the aforementioned typology of workplace learning was promising but that a new model to capture the complexities of learning at work better was needed.

In the present article, we will argue that a noneducational perspective needs to be adopted to understand work-related learning complexity because such learning typically occurs implicitly via work activities and not as a result of formally organized learning programs or events. A descriptive model of work-related learning based on intentionality and developmental relatedness will be proposed to examine some of the complexities of learning at work. Work-related learning is viewed as an integrated process involving the interaction between workers and their environment and as an internal process of inquisition, elaboration, and construction leading to a learning result (adopted from Illeris, 2002). A number of the problems associated with the available conceptualizations of work-related learning, including our own typology (guided, experiential, and self-directed), will first be discussed to introduce the difficulties of understanding the nature of learning at work from an educational perspective. As will be seen, a major stumbling block is a tendency to ground most of the conceptualizations of learning at work in educational theory and terminology. The proposed model is anchored in work characteristics such as support and availability of colleagues and individual worker characteristics such as experience of competence and recognition of the value of work-related learning.

Problems With Current Conceptualizations

Our typology based solely on learning control (i.e., guided learning vs. experiential learning vs. self-directed learning) does not appear to capture work-related learning as individual workers experience it in their day-to-day practice. Only a few of the interview fragments could be categorized as *guided* (Doornbos & Krak, 2001). This is in line with other research on the role of interaction partners in work-related learning who do not appear to take control over the learning of others (Doornbos, Koopmans, & Van Eekelen, 2004). The current typology does not do justice to the context of work. In rereading and rethinking interview fragments reflecting a mixture of different manners of learning, the individual worker's intention to learn stood out as a major consideration (Doornbos & Krak, 2001). Focusing on intentionality is assumed to be a relevant feature of

learning at work and provides a way of bypassing the distinction between learning at school and learning at work (Hodkinson & Hodkinson, 2004). Workplace interaction partners generally respond to the work of others, exchange information, and occasionally serve as role models. Moreover, instead of being explicit, guidance may actually be implicit in the responses of others at work, as depicted by the following comment from a police worker:

I learned to be less direct in my conversations with others. People don't want to hear that you disagree with them. They will immediately resist what you want to accomplish then. This is what happened to me several times. So in order to accomplish my goals, I have learned to be more diplomatic. (Doornbos & Krak, 2001)

The nature of the interactions between workers and their interaction partners is very different from the nature of the interactions between students and teachers, and this difference raises questions about the appropriateness of guided learning for understanding and modeling work-related learning.

Interestingly enough, most of the interview fragments we examined could be categorized, at least in part as, experiential. In other words, all work-related learning appears to be experiential to at least some extent as almost every work experience can generate some learning side effects. For purposes of modeling, however, further differentiation appears to be needed.

When the possibility of workers explicitly defining their own learning goals and strategies was examined, only a few of the interview fragments could be categorized as reflecting self-directed learning. The environment at work is obviously not solely for learning. People are supposed to work more than they are supposed to learn, although the intention to learn may be implicitly present, as depicted by the following statement of a police officer.

It is "boiling" from different sides. There is so much in me that needs to get out. But exactly when this will be, I don't know. It depends on the chances at the moment, which I don't have control over. But when I see a possibility, I'll grab it with both hands. (Doornbos & Krak, 2001)

Rather than taking control over the learning process, as students must (learn to) do at school, self-directed learning within the work environment appears to involve the intention to take advantage of those opportunities that present themselves and thereby exert some control over one's development at work.

In sum, a number of factors other than learner control (Simons et al., 2000) appear to play a role in workplace learning. Several authors have emphasized the importance of the social context for work-related learning, as interaction and cooperation with colleagues can clearly provide the individual worker with feedback and support (Collin, 2002; Eraut, Alderton, Cole, & Senker, 2002b). A series of studies examining learning through everyday work activities and guided learning in the workplace (Billett,

2002a) recently postulated that “in Vygotskian-derived constructivist theory that individuals’ learning is derived intra-psychologically: through interactions between the individual and the social world, including others; and through artifacts, tools and socially derived spaces” (p. 459). Others who share such a perspective are Knight (2002) and Engeström (1999). Knight, for example, draws on Nonaka and Takeuchi’s model of the knowledge-creating organization (1995) and incorporates community (collective) learning and subliminal learning into a model of “non-predictable professional learning.” Billett argues that we need to think about work practice affordances—that is, the distribution of opportunities to participate in the work practice and the question of how individuals elect to engage in such opportunities. Affordances include the types of activities individuals can engage in and the types of interactions they provide. The nature of the interaction can be labeled, for example, as organized learning support, consultation and collaboration, or learning from other people (Eraut et al., 2002b). On a different note, and on the basis of empirical research, Collin (2004) and Eraut, Alderton, Cole, and Senker (1998) have found cooperation and interaction to be the most usual words used by employees to describe learning at work.

In the social and participatory aspects of workplace learning mentioned, the internal and psychological should not be neglected. Most authors recognize that implicit learning can occur via experience and doing the job, but others seem to miss this point and continue to assume that most workplace learning is explicit, conscious, and self-directed. Jarvis (1987), for example, has proposed a model with a focus on the individual responses to experiences that can lead to nonlearning, nonreflective learning, and reflective learning. Straka (2000a) has recently validated a multidimensional model of explicit self-directed learning based on interest, strategies, control, and emotions in relation to experienced autonomy at work, competence, and relations to colleagues and superiors. Some authors do address implicit learning in their conceptualization. Eraut (2000), for example, distinguishes three types of learning; implicit, reactive, and deliberative learning, whereas others actually emphasize the importance of making implicit learning explicit via reflection. For instance, Marsick and Volpe (2001) have recently described learning at work as integrated with one’s work and daily routines, as not very conscious, as often haphazard and influenced by chance, as linked to the learning of others, and as an inductive process of reflection and action. The model of informal and incidental learning that Marsick and colleagues developed over the years is based on the action science model of Argyris and Schön (1996), which is based, in turn, on Dewey’s (1933) theory of learning from experience (Cseh, 1999). Kolb’s (1984) model of experiential learning is also based on Dewey’s but is characterized by a clearly educational interest in intentional learning from expe-

rience via reflection—that is, making the implicit more conscious and drawing conclusions to design experiments to structure new experiences.

A different group of authors has examined the organization of continued education or professional learning with an eye to the improvement of such practices. Unfortunately, the integration of work and learning is often described in idealized, prescriptive terms. Ellström (2001) distinguishes adaptive versus developmental learning within the context of work, for example. Depending on whether the tasks, methods, and work results are predetermined or not, more reproductive, productive, or creative learning is assumed to occur. Similarly, Van der Krogt (1998) has highlighted the tension between working and learning within the context of the “learning network theory” (Van der Krogt, 1998). However, this theory, with its focus on the organization and development of learning systems, does not address the microlevel of interaction between workers and interaction partners who possibly contribute to work-related learning.

In general, the models briefly mentioned above address work-related learning from a macroperspective as opposed to a microperspective. In addition, there is a pervasive tendency to adopt an educational perspective, although this does not appear to be relevant for the workplace, where most learning is implicit, ongoing, embedded in interactions, and unavoidable as we think and act at work (Billett, 2001a).

The Need for a Shift From an Educational to a Noneducational Perspective

To better understand work-related learning, a shift from a largely educational perspective (e.g., Smith, 2003) to a noneducational perspective is needed. The problem is that most work-related learning does not take place within, nor follows from, a formally organized learning program or event but happens implicitly via various work-related and social interactions. The educational and noneducational perspectives on learning are thus very different (Bolhuis, 2001), as illustrated by the contrasting descriptions outlined in Table 1.

It should be noted that the educational and noneducational perspectives complement each other and are not mutually exclusive.

Work-related learning can involve both explicit learning and implicit learning or the learning that happens while people act and interact. People can learn without being aware of it and detect the changes in their thinking and behavioral repertoire only at a later point. Learning can happen either directly or indirectly via workplace experiences and with or without the mediation of verbal explanation. From an educational perspective, learning typically involves the setting of learning goals. In contrast, workplace learning need not have such goals and, if it does, they are usually work-related

TABLE 1: Differences Between Educational and Noneducational Perspectives on Work-Related Learning

<i>Organizing Concept</i>	<i>Educational Perspective</i>	<i>Noneducational Perspective</i>
Process	Learning is mostly explicit and aimed at learning goals	Learning is largely implicit and aimed at work- or person-related goals
Process	Learning is primarily understood as a cognitive and rational process	Learning is part of belonging to and participating in a real-life context involving emotions and the development of a professional identity.
Social setting	Educators usually guide learning	All kinds of interaction partners play a role, but not necessarily a guiding or directive role
Social setting	Although the educator represents authority, access to learning and knowledge are at least supposed to be equal	Hierarchical relations characterize the social work context, and access to learning may thus be influenced by politics and power
Outcome	Learning produces individual knowledge and skills	Learning results in individual and shared understanding
Outcome	Learning content is well defined, based on established truths, and keeps with the state of the art	Learning contents consists of not only truths but also messy problems and changing views
Outcome	Learning represents an improvement in the sense that the individual acquires more of established content; other results are not noted as learning	Whether prior or new learning actually constitutes improvement is open to question

ones (Marsick & Watkins, 1990). The key purpose of activities at work and the prime objectives of workers are things other than learning (Hodkinson & Hodkinson, 2004).

From a noneducational perspective, learning involves various emotional, cognitive, and social dimensions (Illeris, 2002) and can be characterized in terms of both process and result (Wenger, 1998). Learning is a constitutive part of the context in which it is located (Hodkinson & Hodkinson, 2004). From an educational perspective, many of the different dimensions of the learning process are often overlooked in favor of a cognitive emphasis (Sfard, 1998).

As already noted, learning can happen without an educator or anyone to guide or direct the process. All kinds of interaction partners can play a role in learning but not necessarily in terms of guidance. People typically adapt and follow how others behave and talk about each other, their work, clients, and other matters. In contrast, learning is less likely to occur without some sort of external guidance within an educational context.

From a noneducational perspective, workplaces can be highly competitive and the opportunities to learn unevenly distributed (Billett, 2002b). The significance of power in workplace learning is acknowledged in some of the literature about learning (Fenwick, 2001). Cliques, politics, and power may intentionally or unintentionally influence the distribution of opportunities to learn. Those with more access to power can claim learning opportunities, and they can also deny opportunities for learning, whereas those with less power may find access to what they want difficult. In contrast, access to learning is assumed to be equal within a formal education setting.

From a noneducational perspective, learning is situated, context bound, grounded in experience, and based on activities either observed or concretely carried out. Learning results are not only individual but also involve the (tacit) understandings shared by members of a group and inherent in their habitual ways of dealing with situations. From an educational perspective, learning is often emphasized in individual outcomes and assessments.

The learning content is usually fixed from an educational perspective because the purpose of education is traditionally to inaugurate students into the consensual state of the art. In contrast, work-related learning often pertains to new, messy, ill-defined problems, and the changes needed in a competitive economy.

Finally, learning is assumed from an educational perspective to enhance the competence of the individual or contribute to innovations in the organizational practice. Most authors are interested in how innovation can be stimulated and the move from implicit individual expertise to shared knowledge can be facilitated (Nonaka & Takeuchi, 1995). In contrast, other authors have warned that implicit knowledge and skills in the form of the unwritten rules of the game can be unproductive or even harmful at times. Obviously, *the way things are* or *the way things are done here* may not always constitute the best way of doing things. When learning includes the performance of new activities or the creation of new knowledge, moreover, a competition between the old and the new may emerge and call for discussion of what is best. In other words, learning from a noneducational perspective may include questioning, critique, and revision. The difficulty of changing the status quo is not just an individual psychological problem but is also related to workplace practices, and just whose interests are served and whether learning always constitutes an improvement may therefore be questioned.

A noneducational and multifaceted conceptualization of work-related learning can be characterized in terms of the following principles.

1. Work-related learning processes happen implicitly and in addition to more explicit learning.
2. Work-related learning can contribute to both individual and socially shared outcomes.

3. Work-related learning can be characterized by direct or indirect interaction with a variety of interaction partners.

Modeling Work-Related Learning

Based on the three noneducational principles of work-related learning outlined above, we would like to propose a model of work-related learning based on intentionality and developmental relatedness. These two constructs have been chosen because they capture, in our opinion, just how the individual worker experiences work-related learning in a hierarchical organization and the complex interrelations between working and learning. In addition, these concepts appeal to the imagination of workers themselves and may therefore offer a starting point for taking responsibility over one's work-related learning. In the following we will outline the deeper theoretical orientation.

Intentionality

Inspired by Eraut (2000) and Hodkinson and Hodkinson (2004), the concept of *intentionality* has been adopted as an alternative to learner control and to capture the both explicit and often implicit nature of work-related learning (Principle 1). As described earlier, such educational constructs as self-direction or learner control allocate an explicit role to the learner for the organization and planning of his or her learning. At work, however, learning largely occurs during the conduct of various tasks, on the basis of personal interests, according to rather vague career goals, as part of the solution to a problem, or while trying to develop something. Such workplace learning may thus occur implicitly and unconsciously.

To understand the importance of intentionality, one must recognize that different levels of human information processing exist. Levy, Collins, and Nail (1999) distinguish conscious from nonconscious processing, for example. The conscious or controlled processing of information is largely intentional, controllable, within the realm of awareness, and attention consuming. The nonconscious processing of information is automatic, unintentional (i.e., not started by an act of will), uncontrollable (i.e., the individual cannot stop the process once it is started), outside the realm of awareness, efficient, and consumes minimal attention (Bargh, 1996). Intentionality refers to whether an act of will is a necessary condition to put the process in motion—that is, to start it (Bargh, 1996).

Work-related learning may or may not be intentional, as indicated by the work of several authors (Billett, 2001b; Bolhuis & Simons, 1999; Coffield, 2000; De Jong, 1996; Eraut, 2000; Knowles, 1984; Marsick & Watkins, 1990; McCauley & Hezlett, 2001; Megginson, 1996). That is, the intentionality of a worker to learn may be spontaneous or deliberate (i.e.,

triggered by working or planned by the worker himself or herself). We recognize that this perspective is actually continuous rather than dichotomous. We treat it as dichotomous so that we can begin to develop a model regarding the very basic or ideal types. Spontaneous learning can occur when activities are performed with a goal other than learning in mind. This happens when the relevant activity was itself unintended or unplanned or when an activity was planned and intended but not with the explicit intention of learning. The changes in knowledge, skills, or attitudes as a result of such activities are typically unexpected and may therefore be described as by-products, discoveries, coincidences, or (sudden) realizations. The learner may also remain unaware of certain changes when, for example, reflection does not occur (Marsick & Watkins, 1992). Deliberate learning, in contrast, refers to those activities performed with the goal of learning in mind. The resulting changes in behavior, skills, and attitudes are planned, sought, and sometimes even premeditated.

Deliberate learning is not the same as deliberate practice, which is typically undertaken on a regular basis to improve one's competence (Ericsson, Krampe, & Tesch-Romer, 1993). Although Sonnentag and Kleine (2000) apply the concept of deliberate practice to work settings, we prefer the concept of deliberate learning because it is broader than deliberate practice and does not require performance of the activity on a regular basis.

Deliberate learning is also different from self-directed learning (Candy, 1991). When self-directed learning is understood as the "process in which individuals take the initiative in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes" (Knowles, 1975, p. 18), two critical differences between deliberate learning and self-directed learning can be detected. In the case of self-directed learning, both resource management and planning and motivational control and evaluation of the learning attempt are explicitly present (Straka, 2000b). In the case of deliberate learning, the conscious decision and intention to learn is the focus. In the case of self-directed learning, there is also a greater emphasis on the role of the learner than in the case of deliberate learning, where the learner's intention is viewed in relation to interaction partners within the work context.

Finally, deliberate learning differs slightly from informal learning as defined by Marsick and Watkins (1990). They define informal learning as "predominantly experiential and non-institutional" (p. 7) process that takes place through an ongoing dialectical process of action and reflection. Marsick and Watkins address a degree of intentionality in relation to reflection, whereas we apply the term *deliberate learning* here to all those activities performed with the goal of learning in mind.

Developmental Relatedness

The second principle underlying the model being proposed here pertains to work-related learning occurring either directly or indirectly during work-related interactions and contributing to both individual and socially shared learning outcomes. Therefore, we propose to focus on developmental relatedness—that is, how interaction between the learning worker and his or her interaction partner contributes to learning of the learning worker solely or to his or her interaction partner or partners as well. Contributions may vary from change, reinforcement, refinement, and extension to learning something new. Interaction partners do not necessarily play an explicit role of being a learner or developer; learning outcomes are a result of interactions while working (Marsick & Watkins, 1990). The principle of developmental relatedness stems from social networks theory concerning the significance of social ties for learning (Palonen, Hakkarainen, Talvitie, & Lehtinen, 2003). It asserts that learning happens through intensive interaction (strong ties) as well as through distant and less frequent interaction (weak ties). The term *developmental relatedness* is adopted from Kram (1985) and Higgins and Kram (2001), who applied it solely to mentor relations in which psychological or career support was provided. Conceptually, developmental relatedness differs from developmental interactions because developmental relatedness involves an actual attainment (learning outcome, see Principle 2), whereas developmental interaction reflects interactions between two or more people with the goal of professional development (learning goal). We have adopted the term regardless of whether the interaction partner is in the role of mentor or not. Learning at work can sometimes occur via close interpersonal guidance (Billett, 2001a) and can sometimes occur simply during work-related interactions (Marsick & Watkins, 1990).

For the present model, we apply developmental relatedness at the level of the work-related activity and the connections between the activities of learners and their interaction partners that lead to learning outcomes. In the following, three types of developmental relatedness will be distinguished: learning individually, learning from others, and learning together.

Learning Individually

The first type of developmental relatedness is when no direct social interaction resulting in learning occurs. This does not deny that learning is always embedded in the social construction of meaning and that any interaction occurs at all. There is no direct interaction contributing to worker learning, for example, when workers reflect individually on work situations to make sense of what has happened and what they can learn from it. Learning individually also includes indirect interaction via the media and other cultural artifacts, such as when workers pick up a manual to study a topic.

Learning From Others

The second type of developmental relatedness is when workers learn through interaction with other people and this contributes to their development but not necessarily to the development of others. The individual worker benefits from the interaction (D'abate, Eddy, & Tannenbaum, 2003). Of course, there may be learning outcomes for the interaction partners as well, but these remain outside the awareness of the individual worker. A one-way developmental relation basically exists. Examples of learning through interaction with other people at work include the receipt of feedback and criticism from others or listening carefully to a discussion between other colleagues. Role modeling is yet another example in which the interaction partner sets an example with which the learner identifies (or not). Such example can be a spontaneous or deliberate enterprise; the other may be unaware of the example being set, and the learner may be unaware of the strength of identification. In addition, the roles of others as guides, coaches, or mentors can be explicit and entail direct or close interpersonal guidance (Billett, 2002a; Lave & Wenger, 2002; Simons et al., 2000). Direct guidance is most salient when it reveals knowledge that would otherwise remain inaccessible because it is too difficult (hidden knowledge) or inappropriate (imprudent shortcuts) for individual learning (Billett, 2001a).

Learning Together

The third type of developmental relatedness is when workers and their interaction partner or partners both contribute to each other's learning and when this occurs within the awareness of both partners. Both interaction partners benefit from the interaction (D'abate et al., 2003). A two-way or mutual relation for development thus exists. Both partners can simultaneously contribute to the construction of knowledge, but it is also possible for an exchange of knowledge to occur. Learning together can happen in a group, be task oriented, and driven by a shared interest (De Laat & Simons, 2002; Van der Krogt, 1995, 1998). The interaction partners can fulfill the roles of both learner and guide when brainstorming on a work-related topic. Such sharing and negotiation of meaning is often implicit but increasingly being recognized as an important asset for a work organization (Senge, 1990; Watkins & Marsick, 1993). Learning together can also involve the exchange of something in which the other is interested. Examples of learning together at work include reflection on a work situation involving a number of workers, discussion of what happened from a number of perspectives, evaluation, and the construction of shared meaning through action learning. It is also possible to discuss what to do better in the future.

To address that work-related learning can be characterized by direct or indirect interaction with a variety of interaction partners (Principle 3), two

characteristics of the interaction partner are distinguished, namely, the vocational organizational position and the hierarchical position in the primary workplace. It is assumed that learning together or from others happens through interaction with a variety of partners (Wenger, 1998) and that people in different positions provide different opportunities for learning in workers' zones of proximal development (Vygotsky, 1978).

Beyond Vocational Organizational Boundaries

Studies on situated learning and socialization have shown that people outside the primary workplace, such as partners, friends, family members, and clients, play an important role in work-related learning (Eraut et al., 2002b; Vandenabeele & Wildemeersch, 1998). Going beyond vocational organizational boundaries can also foster innovative learning (Palonen et al., 2003). D'abate et al. (2003) address in this respect the organizational location of the interaction partner (developer) in relation to the learner. He or she can be in the same organization as the learner (i.e., inside) or in a different organization than the learner (i.e., outside). Vandenabeele and Wildemeersch conclude from their research findings that learning for farmer's sustained ability always is an experience of communication with people external to the agricultural field.

One farmer, for instance, said that he was trying to take responsibility for the quality of drink water. When asked how he developed this interest, he mentioned being a member of a swim club a nearby city. Being the only farmer in the club, he learned how other people were concerned about environmental problems. (Vandenabeele & Wildemeersch, 1998, p. 128)

They explain that such learning was elicited by a change in the composition of the farmer's network to include people who were not a part of the farmer's primary workplace. Family and friends can be an important source of social support, stimulation, and affirmation, particularly at the start of workers' careers (Staton & Hunt, 1992). Learning from people outside the professional practice happens, for example, in the case of the need for critical information for one's work, through professional networks, highly depending on personal contacts, and learning from suppliers and customers (Eraut et al., 2002b).

Beyond Hierarchical Boundaries

Several authors suggest that learning affordances are unequally distributed within the workplace hierarchical power relations (Billett, 2002b; Fenwick, 2001). Workers obviously interact with all kinds of people, including subordinates, colleagues, managers, and experts (Eraut et al., 2002b). Interaction partners inside the primary workplace have different "relative positions in the social hierarchy" in relation to the employee (learner), and can be higher, peer, or lower (Levy et al., 1999, p. 723).

D'abate et al. (2003) describe the hierarchical level of the learner in relation to the developer. The relationship can be downward (learner is at a lower hierarchical level) or lateral (e.g., peers, and team mates) or upward (e.g., learner is at a higher hierarchical level). In our view, this variability in position gives rise to differences in developmental relatedness and provides us with insight into the ways in which people interact as teachers and learners in the workplace. Interaction partners with a higher position than the learner are expected and often found to enhance worker learning simply because the person with the higher position is more knowledgeable (Salomon & Perkins, 1998), but they may also deny access to learning opportunities. Colleagues with a peer position can enhance worker learning through supervision, reflection, discussion, and evaluation. Similarly, research has shown workers to often learn from new colleagues or interns (Fuller & Unwin, 2004). In other words, workers can also learn from people with a lower position in the organizational hierarchy.

Based on the preceding considerations, a new model of work-related learning on the basis of intentionality and developmental relatedness has been developed. As already mentioned and depicted in Table 2, the notions of intentionality and developmental relatedness help us specify the nature of work-related learning at a microlevel and understand how learning and working are intertwined within work experiences. We want to avoid ideological implications of inherent virtue. Neither one is best. These constructs together provide a useful descriptive typology of work-related learning.

Research Considerations

The descriptive model of work-related learning outlined in Table 2 needs validation and therefore we propose the following.

The two concepts critical to work-related learning in hierarchical organizations are the worker's intention to learn and his or her developmental relatedness to interaction partners.

In addition, the influence of work place practices should be further considered. It is currently recognized by many scholars that learning at work is best understood in terms of the nature of the task itself, the cultural and social relations that characterize the workplace, and the experiences and social world of the participants (Billett, 2002b; Illeris, 2002). Workplace practices can be viewed in terms of work environment and worker characteristics that invite employees to learn at work (Billett, 2002b). Considerable exploratory and descriptive research has been conducted on those factors that appear to inhibit or stimulate work-related learning (Ellinger, 2004; Eraut et al., 1998). And concrete models to identify the learning potential of jobs have been developed on the basis of recent theory (Onstenk, 1997). In Figure 1, six specific work environment characteristics that

TABLE 2: Examples of Types of Work-Related Learning Based on Intentionality and Developmental Relatedness

	<i>Intentionality</i>	
	<i>Deliberate</i>	<i>Spontaneous</i>
<i>Developmental relatedness</i>	<i>Searching for specific information</i>	<i>Building up routine by doing the job</i>
Individual		
Together: Within high	Evaluating an accomplished task with your manager with the shared purpose to learn	Understanding the interests of your manager and providing ideas that help him or her move forward
Together: Within peer	Exchanging ideas with peer colleagues to learn how to solve a problem together	Participating in a team with peers, resulting in spontaneous learning outcomes
Together: Within low	Brainstorming within a group of workers that work on different hierarchical levels	Picking up relevant issues from a junior colleague that you mentor
Together: Outside	Working together with a client on a multidisciplinary project with the purpose to innovate	Finding unexpected insights from a discussion with an external partner
From others: Within high	Purposeful role modeling of a knowledgeable colleague	Dealing with conflict situations between you and your boss
From others: Within peer	Reflecting on performance with help of a peer	Unintended observation of colleagues with similar job
From others: Within low	Asking subordinates for comments	Questions from an intern get you thinking
From others: Outside	Asking advisors and consult on a problem	Receiving unrequested feedback from a client

appear to influence work-related learning are listed on the left side, namely, managerial support, collegial support, possibilities to interact with different types of interaction partners at work, the types of work activities performed, the complexity and variability of the activities performed, and the degree of worker autonomy (Ellinger, Watkins, & Bostrom, 1999; Eraut, Alderton, Cole, & Senker, 2002a; McCauley & Hezlett, 2001; Van der Heijden, 1998). Drawing on previous empirical research, four worker characteristics have been selected for further consideration here and listed on the right side of Figure 1, namely, experience of social integration with managers, experience of social integration with colleagues, experience of competence, and recognition of the value of learning at work (Deci & Ryan, 1985; Kwakman, 1999; McCauley & Hezlett, 2001; Woerkom, 2003). These 10 workplace characteristics are, of course, limited, but they provide a useful starting point for future research. Inspired by Billett's (2002b) emphasis on the role of "co-participation at work", three research topics to guide future research on work-related learning and implications of such for

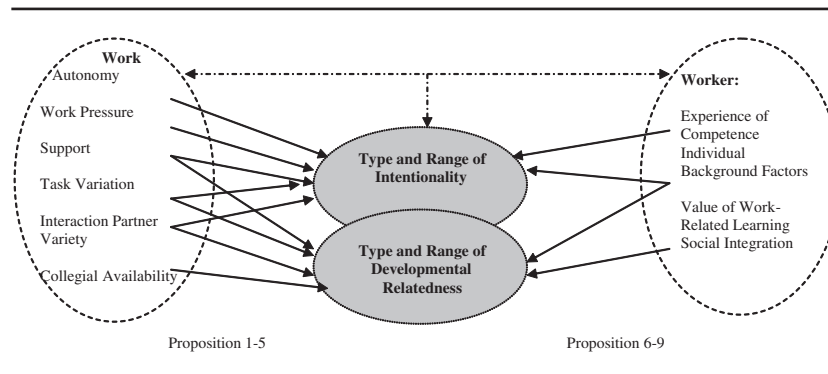


FIGURE 1: Characteristics of Workplace Practices Influencing Work-Related Learning

human resource development (Torraco, 1997), will also be briefly mentioned below.

The first research topic concerns the relation between workplace practices (e.g., work and worker characteristics) and the different types of work-related learning as depicted in Figure 1. To start with, managerial and collegial support, in terms of attention, feedback, advice, and encouragement, can stimulate work-related learning. Secondly, the availability of knowledge and knowledgeable colleagues who are able to help you and the possibilities to interact with a variety of interaction partners, such as managers, peers, clients, interns, suppliers, and spouses, can influence whether and via which type workers learn at work (Billett, 2002b; Eraut et al., 1998; Kwakman, 1999; Onstenk, 1997). Therefore, we offer the following:

Proposition 1: The greater the worker's experience of managerial and collegial support, the more likely he or she will be engaged in a high range of developmental relatedness as well as in intentionality of work-related learning.

Proposition 2: The greater the worker's experience of collegial availability, the more likely he or she will be engaged in learning from peers and learning together.

Proposition 3: The greater the worker's experience of possibilities to interact with a variety of interaction partners, the more likely he or she will be engaged in a high range of developmental relatedness.

Furthermore, the nature of work in terms of content, complexity, variation, and worker autonomy can influence work-related learning (Billett, 2002b; Ellström, 2001; Engeström, 1999; Kwakman, 1999; Onstenk, 1997; Straka, 2000a). The nature of work can be identified in many ways and needs to be addressed when discussing work-related learning. Here, we briefly point to task variation, autonomy, and work pressure. Whether or not workers find themselves in a variety of tasks that provide them novel and/or challenging work situ-

ations can clearly foster work-related learning. Task variation then refers to the extent to which alternation, fascination, and challenges are experienced in connection with one's job. Furthermore, in cases of high task autonomy, the worker is free to select the method and procedure for completion of the task, which may provide more possibilities to include learning goals. We expect the following propositions to be true:

Proposition 4: The more workers perceive the nature of their work to offer task variation, the more likely they will be engaged in a high range of developmental relatedness as well as in intentionality of work-related learning.

Proposition 5: The more workers perceive the nature of their work to offer autonomy, the more likely they will be engaged in intentional learning.

On a different note, the role of work pressure has been found to be ambiguous. Work pressure refers to the extent workers feel they have to work hard and fast. On one hand, work pressure is mentioned as a significant factor in exploratory studies of what workers experience as inhibiting work-related learning. On the other hand, survey studies reveal a positive association between work pressure and work-related learning (Woerkom, 2003). Therefore, we may expect that the amount of work-related learning follows an n-shaped relation with work pressure: There is an optimum balance between work pressure and work-related learning.

With regard to worker characteristics, the notion of *agency* appears to be critical. In addition, individuals' learning histories are always in some way unique and shaped socially through variations in and complexes of historical, cultural, and situational factors encountered throughout life histories (Billett, 2002b; Bolhuis, 2001). Four individual worker characteristics that clearly appear to influence work-related learning are listed on the right side of Figure 1 and can be seen to refer to experience of competence, individual background factors such as educational experiences, recognition of the value of work-related learning, and experience of social integration (Deci & Ryan, 1985; Kwakman, 1999; McCauley & Hezlett, 2001; Straka, 2000a). The experience of competence refers to the belief in one's ability to carry out one's work successfully and effectively. The motivation of a worker is likely to increase when he or she feels capable of doing his or her work well (Deci & Ryan, 1985). An individual's perceived experience of competence, perhaps affected by the match of prior work and educational experiences, may affect the likelihood the individual will seek intentional work-related learning opportunities. Also, the experience of social integration—that is, the feeling of being integrated into the work community and acknowledged by colleagues and superiors—is assumed to foster the necessary condition to learn together or from others. Finally, recognition of the value of work-related learning refers to positive involvement of the worker with regard to intentionality and developmental relatedness. Therefore, we expect the following to be true.

Proposition 6: The greater the worker's experience of competence and the match of education, previous work experiences, and current work, the more likely he or she will show intentional types of work-related learning.

Proposition 7: The greater the worker's experience of social integration, the more likely he or she will show developmental relatedness beyond hierarchical boundaries.

Proposition 8: The greater the worker's recognition of the value of work-related learning, the more likely he or she will show a high range in developmental relatedness as well as in intentionality of work-related learning.

In addition, individual background characteristics such as gender and job classification may also affect both the range of developmental relatedness and the types of intentionality. Women tend to seek help more often than men and may therefore also be more engaged in learning from others (Fisher, Winer, & Abramowitz, 1983). Previous work of scholars shows that workplaces are deeply unequal, with those higher up the status and management hierarchy getting more and better opportunities for (formal) learning than those toward the bottom, who were more likely to be female, working class, or, at least in Western countries, of non-White descent (Billett, 2001c). The question is whether this inequality also holds for work-related learning. Therefore, we offer the following proposition:

Proposition 9: When the worker is a female or employed at lower levels in the job classification, a low range of developmental relatedness and intentionality of work-related learning is expected.

Obviously, the interaction between work and individual worker characteristics can influence work-related learning. And one aim for future research is to unravel the roles of the different factors in addition to the different types of work-related learning based on intentionality and developmental relatedness. Furthermore, the interaction between these factors is likely to be highly complex as individuals both shape and are shaped by their work-related learning opportunities (McCauley & Hezlett, 2001).

The second topic to guide future research concerns possible tensions between the needs and interests of the organization on the hand and the needs and interests of the worker on the other hand. This topic is important with regard to what kind of learning outcomes are relevant to the worker and/or to the organization and what types of work-related learning should be stimulated. As we mentioned in the above, politicians and company representatives recognize the importance of life-long learning and learning organizations in response to the rapidly changing societies and economies. Therefore new learning outcomes, such as learning, thinking, collaboration, and regulation skills are needed. In contrast, workers may feel differently in that respect and would rather stick to their vocation and gain deeper understanding and skills in that specific area. This example illustrates how worker

and organization interests may contradict. Furthermore, work-related learning can foster both positive development that contributes to organizational innovation and knowledge creation and negative development (e.g., imprudent short cuts, passiveness, resistance, irrelevant skills). The question to be answered, in our view, is how to achieve an elegant balance between meeting the needs and interests of the individual worker and those of the organization with respect to work-related learning.

The third topic concerns a number of methodological issues related to the conduct of research on work-related learning. When measuring work-related learning, it should be kept in mind that learners construct knowledge out of the circumstances in which they experience that knowledge and such knowledge construction is an ongoing interpretive process that can be reinforced or not reinforced by past and present experiences. This means that work-related learning cannot be artificially separated out from the situation in which it takes place but that knowledge is situated, being in part a product of the activity, context, and culture in which it is developed and used (Brown, Collins, & Duguid, 1989). Consequently, even if outcomes could be clearly identified, they might be better described as the outcomes of existing or changed organizational practices, as opposed to more or less efficient learning (Hodkinson & Hodkinson, 2004). Although our model of work-related learning focuses on intentions and interactions of workers with others in different positions and locations, many authors approach work-related learning in terms of strategies that reflect an educational perspective. Several attempts have been made to determine the nature and extent of workplace learning processes with help of questionnaires (Dalton, 1999; Holman, Epitropaki, & Fernie, 2001; Kwakman, 1998; Lankhuijzen, 2002; Megginson, 1996; Rowden, 2002; Van der Sluis-den Dikken, 2000). But as far as we know, Megginson's questionnaire is the only one to examine spontaneous or so-called emergent learning. Unfortunately, the questionnaire has been used only with managers and has been found to have rather low reliabilities (Lankhuijzen, 2002; Van der Sluis-den Dikken, 2000). Furthermore, the focus of most of the questionnaires to date has been on the activities of the individual worker, whereas our review has shown their interactions with others to be a critical determinant of work-related learning. In addition, many authors recognize the spontaneous and implicit nature of work-related learning but continue to focus almost solely on the importance of deliberate and explicit learning. Perhaps the instruments used to study learning in organizations should be examined for inspiration (Pedler, Burgoyne, & Boydell, 1997). In any case, the constructs of intentionality and developmental relatedness as incorporated into our model of work-related learning are unique and therefore call for the development of a new measurement instrument.

In closing, the model presented here (Figure 1) may provide a possible model for human resource development professionals interested in shaping a “rich landscape of learning” that does justice to the rich and diverse ways in which people learn and change (Garvey & Williamson, 2002). The model can help such professionals conceptualize specific features of work-related learning and understand the relations between work and learning in relation to types of learning as identified from an educational perspective. Although effective means of improving work-related learning are unlikely to be universally applicable, an important benefit for learning programs may be to affect how actively individuals seek out different types of work-related learning in their particular context. One can start, for example, helping workers become aware of their personal types of work-related learning and stimulating them to develop alternative or additional forms of work-related learning (see Table 1). Studying the workplace in terms of developmental relatedness may lead to useful suggestions to organize relations within the work practice so as to stimulate learning. The idea of going beyond vocational or hierarchical boundaries may be helpful to organize learning events throughout and outside the organization. Some authors suggest moving the process of learning toward deliberate learning via the development of proactively initiated action and maintenance of active control over learning and metacognitive competence via reflection on learning experiences (Carré, 2000; Marsick & Watkins, 1990, 1997).

Another example of how the present model can guide future practice is via a shift from prescriptive role and task description to a supportive role facilitation and resource provision (Torraco, 1999). Along these lines, Onstenk (1997) speaks of the “learning potential” in the workplace, for example, in the movement from participation in low -to high-accountability work activities. Billett (2001b) speaks of affordances of work experiences, such as access to knowledge through direct and indirect guidance provided by the physical and social environment. Intervention can thus be aimed at the coaching of leadership, provision of learning resources, and development of a culture of learning identified by knowledge sharing, collaborative learning, and acceptance of learning from mistakes.

Conclusion

Our purpose in this article has been to stimulate research and thinking about work-related learning. Our review of the theory and research suggests that a shift from an educational to a noneducational perspective is needed. The typology we propose (see Table 2) offers a starting point for understanding different types of work-related learning. Our framework illustrates multiple factors that shape the occurrence of work-related learning types (Figure 1), and our propositions associated with them, offer researchers a

specific research agenda. Implications for human resource development toward improving work-related learning will probably differ with types of learning, different contexts, and different individual backgrounds.

Note

1. Although Simons, van der Linden, and Duffy (2000) refer to self-directed learning as *action learning*, we prefer the term *self-directed* to emphasize the element of learner control.

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