5.1.2 Situated learning in communities of practice as a research topic

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The social structure of learning (in a vocational or other academic environment) is an integral and at the same time implicit component of what is actually learned, whether in training settings (vocational and otherwise), in informal groups, in teams or departments, in companies or in networks. This is what is meant by the situatedness of learning processes. In this paper we will discuss the theory of situated learning (LAVE/WENGER, 1991), with respect to both its analytical strength and its formative potential. We are thus principally concerned with:

(1) the significance of ↑communities of practice as places of learning, whereby the increasing participation and engagement of newcomers in a developing social practice can be made the subject of investigation into learning processes.

(2) using the concept of situated learning to clarify the structural relationships of individual learning processes at work as well as questions concerning organisational development.

(3) examining the possibilities and limitations of implementing this concept – initially analytically – in vocational learning practices, with the help of specific suggestions.

This paper addresses these three areas and concludes with a critical reflection on the concept of situated learning in communities of practice.

5.1.2.1 Defining and classifying the theory of situated learning

The theory of situated learning was developed within the context of ethnographical studies (LAVE/WENGER, 1991) and it forms the basis for formative concepts that deal with questions of setting up communities of practice (WENGER, 1999), establishing ties with knowledge management (WENGER/MCDERMOTT/SNYDER, 2002; CLASES 2003) and creating intercompany learning fields (ENDRES/WEHNER, 1996). We are highly sceptical with theories of learning or teaching in which it is assumed that `pure` knowledge can be gained without any reference to the social context in which it is initially acquired. If the specific circumstances in which the knowledge originated are viewed as being of little consequence, then the learners are ultimately faced with a content that has been cut off from its specific place of origination in a community of practice, that is, it has been *desituated*.

Lave and Wenger are not alone in their criticism of learning processes in which the situatedness of learning processes is disregarded. Their criticism reflects the claims of a

phenomenologically formulated concept of learning (SCHULZE, 1993), which, among other things, insists that:

- learning should be understood as an autonomous activity, not as an epiphenomenon;
- learning should not be reduced to scholastic teach-learn directives set up as curricula;
- analysis should not be applied merely to isolated elements that represent partial phenomena but should also take into account more complex processes that have a long-term effect.

The move away from behaviouristic ignorance to cognitive, motivational or volitional factors in the learning process marks the cognitive turning point in both teaching theory and psychology. Whereas the highly influential Test-Operate-Test-Exit (TOTE) approach of Miller, Galanter and Pribram (1960), which even then was oriented to the symbol-processing paradigm in psychology, still bears neo-behaviouristic characteristics, the *physical symbol system hypothesis* of Newell and Simon (1972) represented a real breakthrough in the cognitive sciences and in artificial intelligence (AI) research. This paradigm implies that not only do human beings operate cognitively, so do all machines that use rule-controlled mechanisms (of a specific syntax) to represent and manipulate separate physical elements (symbols). Accordingly, from a functional standpoint, every cognitive system may be classified as a representation machine. Thanks to the cognitive approach, the world of thinking and learning has been turned on its head. However, the thinking and learning process is conceptualized by neglecting its pragmatic dimension, that is, the practical learning activity in a social space. This "cognitivistic" reduction generates typical conceptual dilemmas (LAW, 2000).

Approaches to the situatedness of the human processes of thinking, learning and problem-solving are linked by a fundamental criticism of this cognitive world view. However, no real theory of situatedness exists, merely different approaches to using the concept. The term situatedness, which is found as early as Mead (1934), was taken up again in the debate on AI research (WINOGRAD/FLORES, 1986) and was thereupon referred to, for a time, as situated activity (SUCHMAN, 1987). Further approaches, each with their own focus, then followed (ROGOFF, 1990; GREENO/MOORE, 1993; CLANCEY, 1993; CLASES/ENDRES/WEHNER, 1996; KIRSHNER/WHITSON, 1997). Related theoretical treatments that also highlight the constitutive role of social practice for learning processes are the concept of *distributed cognition* of Hutchins (1995) and the contributions of *socially shared cognition* (RESNICK/LEVINE/TEASLEY, 1991).

Based on ethnographical studies (for example, LAVE, 1988), Lave and Wenger (1991) examined a number of social parameters that affect situated learning processes from an anthropological perspective. Their interest focused on the structural aspects of the process that turns a newcomer into a full member of a community of practice. They argued for a new analytical perspective by exploring the significance of learning processes in and for ↑communities of practice: firstly, learning creats *continuity* against the background of specific traditions in a field of practice (a focus on reproduction) and secondly it produces *discontinuities* and fractures (a focus on innovation), which can lead to the further development of *existing forms of organisation*.

The concept of a community of practice as a place of learning will now be developed.

5.1.2.2 The concept of a community of practice: between reproduction and innovation

The learning processes of newcomers who, over time, develop into experts within a specific context, for example within a particular vocational field or environment, are described by the above authors as having an essentially social character. Thus new company employees acquire the knowledge needed for their work only to a limited extent via formal process descriptions or curriculum-based training sessions in which explicit and codified knowledge is documented. Rather, their learning consists of actively acquiring corporate practice by their attempts to reproduce specific action units (BROWN/DUGUID, 2001). Communities of practice that depend precisely on reproducing these action units represent the actual environment in which learning takes place, that is, where knowledge is generated, passed on and modified.

> "People belong to communities of practice at the same time as they belong to other organisational structures. In their business unit, they shape the organisation. In their teams, they take care of projects. In their networks, they form relationships. And in their communities of practice they develop the knowledge that lets them do these other tasks." (WENGER, 1998)

The term "community of practice" implies neither the physical presence of the participants nor a well-defined and clearly identifiable group with distinctly visible social boundaries. Neither can a community of practice be characterised by the presence of the actors' common goals – such as a homogeneous community of interest. Moreover, communities of

practice do not arise from purely formal organisational parameters but are rather the result of historically developed and shared models of action and interpretation. Formal regulations make up only a small part of these models, which are largely the result of processes of negotiation that are repeatedly carried out in corporate practice between the actors involved.

The shared engagement of all the actors in reproducing and passing on an activity system (ENGESTRÖM, 1987; RAEITHEL, 1992) is characteristic of communities of practice. The term "engagement" covers both the technical artefacts (activity resources) used in a community of practice as well as the formal and informal organisational structures (coordination resources). Both activity and coordination resources may be considered as conveyors of the history or tradition of communities of practice and they are understood by learners as situated, situating and hypostasised aspects of their practice. Examples include workplace descriptions and manuals that are designed to regulate the performance of work tasks and ways of handling relevant work resources. Patterns social relationships or ritualised modes of behaviour in formal work organisations are other examples.

The resources used should be understood as places of knowledge that are not self-explanatory but need to be interpreted. Thus models of interpretation are produced within the context of communities of practice, which take on a guiding function for those involved in them. We may call these *local models of interpretation* and understand them as processes of assigning significance that have arisen in a form typical for each community of practice. The reproduction of communities of practice and the creation of continuity occur when local models of interpretation are passed on and relevant tasks are realised. In this context, the particular function of learning processes in ↑communities of practice then becomes clear. Newcomers must be *legitimised* to participate in the reproduction of tasks, which tend to be marginal at the beginning of the learning process. This is the only way for them to become full members of a community of practice, thereby contributing to its reproduction. However, any attempt to reproduce a community of practice will encounter different perspectives, goals and ways of performing of the actors involved. No identical reproduction is possible, as fractures and shifts occur. The tradition-forming reproductive cycles then become productive innovative cycles.

5.1.2.3 Situated learning as legitimised participation

In communities of practice it is not enough to simply embed learning processes in a contents-based and situational context: on the contrary, learning should be understood as a

fundamental and often tacit component of social practice in general. It is not the social context that teaches the learner to act in a specific way, but rather the learner's perception, redefinition and emotional evaluation of the situation as it emerges, that is, its social situatedness in a community of practice. If vocational practice is reflected as learning practice, then its fundamental aim should direct towards extending the individual's involvement in socially relevant activities. Acquiring ↑expertise then becomes the vehicle for participating in a full social (working) life.

The learning content can also be defined by the requirements needed to participate in a community of practice. At the same time, the motivation to participate in such a community also contributes to boosting the individual's readiness to acquire the necessary competences and skills. Lave and Wenger (1991) have, with their conceptual triad of *legitimate peripheral participation,* proposed analytical concepts that can be used to analyse the specific situatedness of learning processes. These components should not be discussed independently of each other and they are also mutually dependent. In the theory of situated learning, learners are understood as indviduals who:

- are involved in a community of practice to a specified degree and are increasingly able to *participate* in the various tasks in the field of practice;
- have a concrete and *legitimate* form of access in each case; and
- occupy different but specific positions of *peripherality* in relation to the field of practice, that is, they are at a certain distance to the community's core activities.

On the term legitimacy: learning processes are characterised by the legitimacy of the learners in a communities of practice. A learner's access to a field of practice is always associated with a certain socially coordinated "access authorisation". This does not concern the institutional legitimacy of an involvement in itself, but rather the form that it assumes. This concept consequently refers to a specific arrangement with respect to the subject being learned. This form of legitimacy is not only a necessary condition but also a constitutive determining factor of the content of the ↑learning situation itself. It has a significant effect on the position of the learner with respect to the person's extent of access to the knowledge of the community. Just as many strategies that complement legitimacy but aim to exclude and isolate learners can be found in corporate practice; they may be seen as barriers that can restrict potential learning opportunities

There are many different *forms of legitimacy* that are defined by communities of practice. Examples include permission to take part in sessions and group meetings, the more or less autonomous assumption of tasks critical to success within the community of practice, or the regulation of access rights to information on the Intranet. Access to minutes and other documents, the leeway granted to individual initiatives for contacting various corporate experts, and systematically supported access to other groups or departments (such as via ↑guest attendances, see below), the activities of which are related to the tasks to be learned, are other examples. In the latter case, legitimacy also invariably refers to the places of learning that might lead to a change in perspective for the learner, have an effect on the learner's situatedness and lead to different learning patterns.

On the term peripherality: its meaning is the opposite of non-referentiality or even non-significance. In contrast to the connotations associated with the term periphery, peripherality does not indicate the margins of a community of practice. The peripherality of learners relates to their positioning within a community of practice; it points to various places in the community from which the learners situate their perspective. It also involves a certain *peripheral pressure to act* in the field of practice, which allows learners to build up a cognitive and emotional distance to their practice. The legitimate peripheralised involvement of learners is of fundamental importance to a community of practice, because it opens up spaces for reflection as well as for the development of new perspectives and innovative questioning.

On the term participation: despite and because of their peripherality to the central processes of a community of practice, learners are involved in the structure of the community. Their significance arises from the fact that every community of practice needs to initiate learning processes in order to assure its own reproduction. The way the learning processes are initiated leads to various forms of learner involvement in the community's social practice, and these in turn can affect organisational development possibilities. The position of legitimate peripherality gives learners more than mere observer status. This concept includes the engagement of learners, who penetrate the culture and the local models of interpretation associated with it. In learning processes, participants may have conflicting perspectives that then become the learning content. By anticipating conflicts, learning processes become dynamic forms of involvement in conceptual terms. Individual learning processes that turn local models of interpretation into a topic of study are then more closely linked to questions of organisational innovation. Hence newcomers become sources of innovation if they – legitimated for this very reason – question

established practice. Everything that is time-honoured, proven, routine can be re-examined with regard to its appropriateness.

5.1.2.4 From analysis to intervention: formative fields in the workplace

With regard to the development of framework conditions for corporate learning processes, we will now refer to three formative fields presented elsewhere in more detail (ENDRES/WEHNER, 1996). Their formulation is linked to the theory of situated learning: guest attendances between companies; people with border-crossing tasks; and ↑intercompany workshop groups.

Guest attendances are used in the first instance to allow a limited amount of *communicative exchange,* confined to a specific time period, to take place between potential partners. Guest attendances should be run in those sectors where a coordinated process must be assured between spatially separate organisational structures. However, their aim should not be merely to get to know the linking coordination structures but ultimately the potential partners too, so that potential problem areas in the work process can be recognised and examined. We assume that ↑guest attendances take place in the presence of others, help to build trust between individuals, enable an exchange of views to take place so that existing ideas may be revised. The causes of a lack of corporate coordination cannot, as a rule, be corrected alongside daily business but can only be dealt with through troubleshooting.

People with cross-border tasks can then track cooperation problems occurring between groups, teams or departments on the basis of individual cases, moderate and help eliminate them. Thanks to cross-border activities, employees can broaden their social and technical competences by dealing with critical incidents. This can only happen if they are also authorised to track, moderate and ultimately eliminate problems beyond their department and workplace. In contrast to guest attendees, ↑border-crossers do not keep to fixed sectors but only enter those domains that are experiencing problems: they remain there not solely to get to know the coordination structures but to influence them directly. Border-crossers are consequently characterised by their orientation to resolving individual cases, through which they will obviously also gain much personal insight. People with cross-border tasks can help build up control procedures, which are ultimately used not only to correct individual problems but also contribute to improving coordination within and between communities of practice.

Intercompany workshop groups, which may be understood as co-construction forums (WEHNER ET AL., 1996), are the arena into which the experiences gained by guest attendees and

border-crossers flow together. On the basis of cooperative experience, existing cooperative relationships are explicitly examined by systematising known sources of disturbances and treating them in a solution-oriented way. In contrast to the cross-border function, these workshop groups do not merely pursue individual cases; rather, individual topics are examined in order to determine their general validity. In workshop groups, new agreements designed to extend established cooperative relations are developed. They therefore represent a special form of "expansive" cooperation (WEHNER ET AL., 1996). An overview of these formative fields is shown in Table 1.

	Guest attendances	*People with cross-border tasks*	*Intercompany workshop groups*
Catalyst	potential problem areas	current critical incidents	systematic sources of critical incidents
Intended Goals	gain knowledge about current coordination structure	solve individual cases by collaborative negotiations	development of comprehensive solutions
Cognitive Effects	ability to anticipate work contexts of potential collaborators	task-related competencies to deal with critical incidents	problem-solving competencies and shared experiences
Organisational Effects	increase transparency of interdependencies in workflows	avoid the monopolisation of knowledge	participation in and development of new forms of cooperation

Table 1: Overview of the three formative fields

The catalyst for situated learning in the three formative fields comes from anticipated, current or generalised problem areas in communities of practice. They are handled by an exchange of communication and cooperative negotiation, approaches that assume some experience in procedures. The results are a higher level of cooperation, improved depth of insight into the procedures as well as a heightened level of anticipation. The strategic goal is to increase the

prognostic ↑validity of cooperatively negotiated coordination structures and to improve cooperative competences on a situational basis.

5.1.2.5 Situated learning and prospects for research into vocational training

In discussing the formative areas, we have noted that, in each case, learning occurs in a specific form. The first characteristic of this form of learning is that it takes place neither in a decontextualised nor an exemplified way but rather alongside actually occurring events in interactive contexts. It can thus be designated as *situated learning* and can be clearly distinguished from *instructed learning*, where the learning objectives and tools are subject to prior professional structuring and are passed on precisely by means of instruction. Situated learning on the other hand "takes place *in the background of* the activities that 'make us learn' and of the perceptions and awareness with which we accompany these activities. Learning is subsumed into what is learned. It disappears as our knowledge and capability grow. It is transformed into knowledge and skills" (SCHULZE, 1993: 246).

To conclude, we will take a look at the prospects for research into vocational training that may result from the concept of situated learning in communities of practice. The findings, which would be suitable for carrying out research into vocational biographies, educational environments or vocational training curricula, would invariably be seen to go beyond a cognitively constrained perspective on (technical or social) problem-solving competences. Vocational training (in factories, relevant training centres, associations, clubs and so forth) would have to be examined as to how far it transgresses an essentially individual-centred approach in practice. It would therefore be necessary to examine not only the knowledge that is (apparently) regarded as necessary but also the skills or competences targeted by specific vocational training courses.

An investigation of vocational training approaches and environments as communities of practice would be an obvious first step. This would mean analysing various ↑training courses, including the way they have become institutionalised, in order to identify the (dys)↑functionality of specific forms of legitimacy, the options for participating and the positions of peripherality. Vocational training biographies are being examined in long-term studies: the factors that influence how successfully individual and organisational competences interlock could then be discussed. ↑Comparative studies situated alongside various vocational training routes then become interesting when they focus on the differences between the knowledge bases of a

community of practice defined by curricula and those used in vocational practice. What are the topics and focal points? What are the key challenges, problems and outstanding questions? Which practical approaches, reference models, standards, instruments, stories, examples of good practice and documents are distributed in communities of practice and how are they made accessible? Under what contextual conditions and to what degree is the peripherality relating to pressure to act appropriate to newcomers? If the picture of the much-touted process of lifelong learning is indeed correct, then the development of ↑expertise immediately opens up as a topic of research. How do communities of practice change alongside the situated learning processes of their most advanced members? How do the latter continue to develop their own ↑expertise? Even if learning takes place in the ongoing process of living "in the background of … perceptions" (see above) and thus transforms us, ultimately we come across it again in what we have learned. When learning processes are reinterpreted as situated processes, then perhaps they will be understood in a new way.

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