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Contradictions in Expansive Learning: Towards a Critical Analysis of Self-dependent Forms of Learning in Relation to Contemporary Socio-technological Change

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Abstract: Current policies to expand and "flexibilise" labour markets are encapsulated in the drive to ensure "employability". To achieve this "employability", workers and the unemployed are encouraged to participate in "life-long learning". In this context, the traditional understanding of education as instructional pedagogy is increasingly replaced by learner-centred approaches which allow more autonomy and individuality within the actual learning process and demand greater personal (learner) responsibility for progress and success. Such self-dependent learning might seem to provide a promising alternative to traditional schooling—which often proves contradictory in producing a rather passive attitude among the learners by undermining motivation. But the challenges of those "new" forms of learning have turned out to be contradictory as well.

This article seeks to clarify how to take account of these contradictions. Theoretically, it proceeds on the basis of a discussion of Klaus HOLZKAMP's "subject science of learning" and Yrjö ENGESTRÖM's activity theory. Both approaches are centred around an idea of "expansive learning", and each stresses the interrelation between individual learning processes and external development as a route towards extending action possibilities and one's power to act. But they differ significantly on the matter of contradictions. For HOLZKAMP contradictions are considered an obstruction or hindrance for learning, while for ENGESTRÖM they are a starting point for problem solving and development. In the blank spaces within and between these theories, however, a slightly different approach to expansive learning is developed. Two case studies, that were part of a larger enquiry on a vocational training program for IT-specialists (LANGEMEYER 2005a), are used to enhance the comprehension of contradictions in relation to learning, and to exemplify an analysis of the current changes in education processes.

Table of Contents

1. Constraints of Self-dependent Work-based Learning

The idea of "lifelong learning" (*éducation permanente*) was part of the first campaign of the OECD in the early 1960s. But since the mid-1990s it has once again become an issue of major political and economic interest. This reflects political responses to perceived labour market requirements. Employers increasingly demand highly qualified and "flexible" labour force. In response, many governments have launched adult education programs, often with a focus on work-based learning, to seek to increase labour supply and to enhance workers' capacity for self-organisation. Likewise, many companies themselves try to enhance the disposition for self-management among their employees. These increasing demands for self-organisation might also be expected to have potentially a very desirable implication—more self-determination for those who learn and work within the new societal relations. However, empirical studies show that this "freedom" is partially experienced as a burden (cf. LANGEMEYER 2003, MAYER-AHUJA & WOLF 2005). [1]

The reasons for these changes are quite complex, but technological development is a key determinant. One upshot is that we can observe a different interrelation between employees' work capacity, their responsibilities, and the way technology is applied in the work process. This can be encapsulated as follows: Inventing, planning, executing and controlling were previously carried out within hierarchical organisational structures based on a division of labour that separated manual and intellectual work. For operating machines, physical strength and manual skills are required above all for the actual work process. However today, as a result of the implementation of information technologies (IT), work activities have become increasingly intellectual: regulative, investigative, experimental and generally increasingly scientific. Procedures have merged into integral tasks and the former division of labour has become more or less obsolete (cf. PROJEKTGRUPPE AUTOMATION UND QUALIFIKATION 1987). A new less hierarchical organisation of work gives more autonomy and responsibility to the employee and requires collaboration—as well as problem-solving competences. [2]

Facing employer demands for "employability", the German government, for instance, tried to foster "new" forms of adult learning—like training-on-the-job and "e-learning". Analogous to new conceptions of production and rationalisation ("lean production"), these methods are intended to facilitate learning processes "just-in-time". They aim to avoid some familiar problems, or contradictions, in learning, such as passivation of learners, or the fomenting of attitudes of resistance. They also seek to overcome the separation between theory and practice—which is often painful for newcomers and time-consuming for companies. [3]

Yet, the fact that workers or apprentices are forced to learn more self-dependently under precarious working conditions seems to nurture *new* contradictions. For they have little or no influence on either the conditions (global competition, rationalisation processes and the tight labour market) under which they are supposed to learn, or the purposes for which they are supposed to learn. This means that although more familiar restrictions of institutionalised education (like fixed curricula, pressure to perform, strict rules for teaching and efficiency control, etc.) have more or less been abolished, other constraints have come up that affect these self-dependent forms of learning. How can we understand the problematic of these changes? [4]

2. The Contributions of ENGESTRÖM and HOLZKAMP to a Socio-critical Learning Theory

To analyse contradictions in work-based learning it is helpful to refer to the theories of expansive learning developed by both ENGESTRÖM and HOLZKAMP. Both approaches try to understand learning not only as an individual practice, mainly organised within the boundaries of school or similar institutions, but also as a socio-cultural activity underlying human development—an activity which contains the possibility of enhancing the quality of one's life and increasing power and control over one's own living conditions. [5]

ENGESTRÖM, who first introduced the concept of expansion into learning theory (1987), focuses on learning processes that lead to a collective mastery of societal problems. This mastery is interpreted as the fundamental process of socio-historical development, and it is one that is seen to be driven by the contradictory nature of human activities. His idea of grasping learning in social rather than simply individual terms is partly based on HOLZKAMP's utopian concept of a generalised "Handlungsfähigkeit" ("action potency"). This is intended to encapsulate the possibility of becoming a self-determined member of society who is no longer exposed to uncontrollable and damaging forces, especially to those of domination and exploitation. [6]

Yet HOLZKAMP conveys a slightly different notion of expansive learning in his project of a "subject scientific foundation" of learning (1993). Indeed in a footnote he explicitly rejects ENGESTRÖM's approach. He considers learning as a modality of intentional action (*handeln*) and tries to analyse it in terms of an interrelation between societal possibilities to act (depending on the historical conditions and the subject's situatedness) and individual reasons to act (mediated by meanings which are re-/constructed in response to the subject's vital needs and interests). Accordingly, he is not concerned, as is ENGESTRÖM, with the transformation of activity systems but with the nature of the subjective reasons to learn. In school, he argues, learning mostly takes place in order to avert negative effects such as bad grades. In his terms, such learning is likely to be defensive rather than expansive—in the sense of extending one's power-to-act. This implies that, although each learning process embodies the potential for development and enhancement, feelings of powerlessness, dependence, fear or despair are rarely overcome and the quality of life remains more or less the same. Since

institutionalised education has developed many procedures to punish, to normalise pupils, and to select the "elite" and the "inferior" (cf. FOUCAULT 1977), learners suffer from an expropriation of their motivation. The tendency is not to engage with the subject matter as an end in itself, and instead to try to cope with challenges more strategically in order to invest a minimum of effort. Rather than seeking autonomy, the achievement of good grades becomes the priority objective. Thus, education, although it provides a wealth of possibilities to learn, often fails to generate sustainable learning. For HOLZKAMP, this turns out to be the major contradiction of schooling. [7]

3. Contradictions in Learning Activities

If we compare HOLZKAMP's to ENGESTRÖM's approach to expansive learning, we can discover two different views of contradictions. While HOLZKAMP considers them an irritation or an obstruction for learning and development, ENGESTRÖM sees them as a starting point for expansive learning processes. However, this must not be interpreted as a theoretical problematic: Whether we find a solution to any contradiction we face, it cannot be purely decided on a theoretical level. This is ultimately an empirical question. [8]

However, it is necessary to take a closer look at the problem of how contradictions may affect human activity, especially learning and developmental processes. The significant changes in contemporary workplaces have increased the reasons for investigating how these impairments emerge and how to avoid them. But these questions require seeing educational problems from a different angle: Although the typical restrictions of institutionalised education have more or less been abolished in those areas where self-dependent forms of learning have been developed, other significant constraints have emerged in the meantime. Precisely because learners are supposed to conduct the course of their learning processes self-dependently under conditions that only provide a limited scope for self-determination, hence we can expect learning trajectories to be contradictory rather than truly expansive. In seeking to grasp this historically new impact on learning processes, which nevertheless show many characteristics of "expansive learning", it becomes apparent that new questions are posed for HOLZKAMP's, as well as ENGESTRÖM's, theory. [9]

HOLZKAMP discusses "internalised constraints" and the "expropriation of expansive learning", for instance, when one's own interests and those of others are so "intertwined" that "power is not acting on the subjects from the outside but through them, through their subjectivities" (1993, 523, my translation), yet this problem is insufficiently reflected in his analytical categories (defensive/expansive learning). In particular, the concept of "defensive learning" is tailor-made for the problems of schooling (the resistance of pupils against education), whereas "expansive learning" seems to be only its positive counterpart, but still conceived within the same paradigm. For HOLZKAMP exemplifies his vision of a self-determined education with some of his own individual experiences—of learning something "for its own sake". Expansive learning thus becomes associated with a practice free from restrictions, disturbances, or contradictions. [10]

For the current situation, however, we may ask whether contradictions concern *expansive* rather than defensive learning processes, since in the current context everyone (employed or unemployed) is challenged with learning through their own motivation and self-management. If this is the major problematic at stake at the moment, a methodological and conceptual "innovation" will be necessary. [11]

4. Blank Spaces in HOLZKAMP's and ENGESTRÖM's Theories

Based on the contradictions described before, the following question becomes salient when developing a subject-scientific approach to learning. Can learning sufficiently (for a subject-science) be analysed when we focus on a momentary interrelation between possibilities and subjective reasons to act that HOLZKAMP termed "a pattern of reasons" (*Begründungsmuster*)? In Vygotskian thought, for example, learning activity may also be comprehended as a process in which external or non-subjective determinations are transformed into forces that are under the subject's control. This appropriation concerns one's own human nature as well as the societal relations and conditions as something that could stand for "external nature". VYGOTSKY's structuralist approach investigates the complex development of relations within the psychic system, as well as between the individual and the world, as a social reality. Each developmental process is characterised by certain relations and dynamics, which become dominant while others fade away. [12]

If we shift from HOLZKAMP's "discourse of reasons" to this Vygotskian focus of interest, another issue arises. While the analysis of the subject's reasons always presupposes a subject who decides (consciously or unconsciously), the formation of this subject and her subjectivity or personality becomes more or less a secondary, undisputable issue (cf. NISSEN 2004). Thus, HOLZKAMP's analysis of schooling seems limited to an explanation as to why the sustainability of education is often not assured, but it does not clarify why, for example, some students also learn to enjoy to be dependent on the teacher's help and recognition and *not* to be responsible for their own learning progress. In other words, HOLZKAMP neglects sufficiently to consider that any institutional formation comprises, beyond an acquisition of knowledge and capacities, a certain formation of self and the internalisation of certain cultural forms of behaviour: In school, for instance, students also learn to behave and to think *as students*. One can say, by referring to BOURDIEU's theory, that HOLZKAMP does not sufficiently ask how societal structures are internalised and form the "habitus" of a person, i.e. a set of "attitudes" from which a person generates his or her behaviour as a response to a concrete situation. But this blank space does not appear accidentally. If he had known BOURDIEU's theory HOLZKAMP would have probably have rejected it, precisely because he would have recognised the nexus between external and internal structures solely as an interrelation between societal possibilities to act and the way individuals relate to them as the premises of their actions. But the strength of his assumption is also its weakness. While it rejects any explanation on the basis of innate essences, it simultaneously rejects any analysis of processes of socialisation and enculturation that may not be considered only from the standpoint of a single subject. [13]

Unlike HOLZKAMP, ENGESTRÖM highlights these aspects of the formation of self and enculturation as the appropriation of "deep-seated rules and patterns of behaviour" that always accompany the "acquisition of the responses deemed correct in the given context"—for example, giving correct answers in a classroom. Thus, "students learn the 'hidden curriculum' of what it means to be a student: how to please the teachers, how to pass exams, how to belong to groups, etc." (ENGESTRÖM 2001, p.138). But this student identity might not fit with other contexts—not least with the new work places. Any new context can "bombard participants with contradictory demands", so that "a person or a group begins to radically question the sense and meaning of the context and to construct a wider alternative context" (ibid.). Thus ENGESTRÖM sees contradictions as an opportunity for development and learning to occur. Instead of seeing contradictions as inducing stagnation, he recognises them as a possible starting point for expanding the range of action possibilities and for overcoming disturbances. But this interpretation cannot be convincing unless one takes into account how a "fundamental learning" (cf. Max MILLER 1986), i.e. a questioning of one's own habits, values and beliefs, can be achieved in the context of social conflicts and crises. And herein lies a problem, for in investigating ENGESTRÖM's work it seems to become apparent that he conceptualises the emergence of an alternative practice, or any solution to contradictions, on a collective, but not really on a *subjective*, plane. To show this, it is necessary to explain aspects of his theory more fully, especially his notion of human activity which he models in the following way.

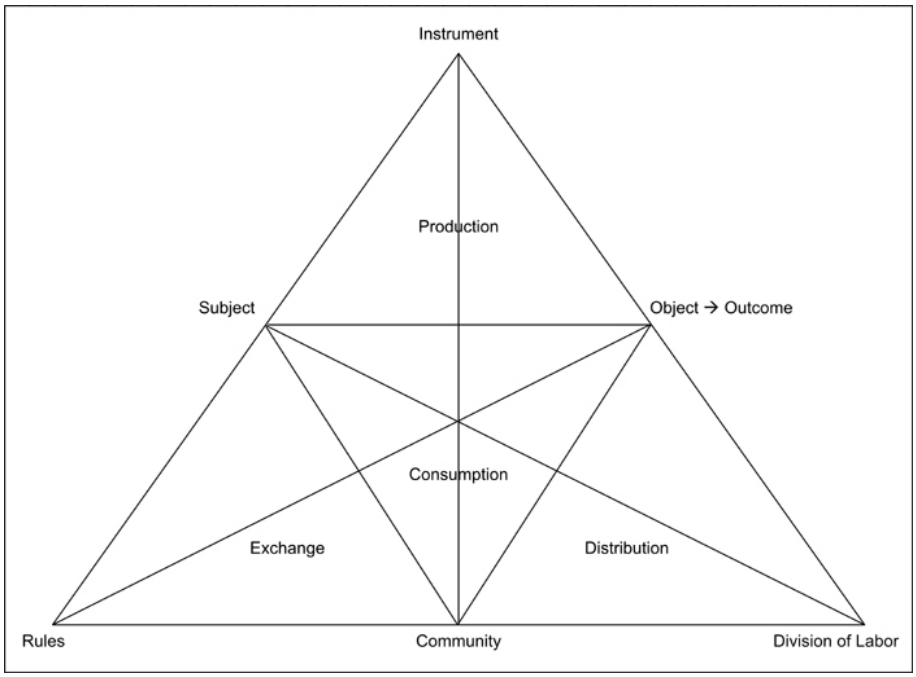

Figure 1: Model of the activity system (ENGESTRÖM 1987, p.87, Figure 2.6) [14]

In the upper triangle, the practical interrelation between subject and object is interpreted as a productive action mediated by cultural artefacts or instruments like tools, symbols, language, etc.

> "The insertion of cultural artefacts into human actions was revolutionary in that the basic unit of analysis now overcame the split between the Cartesian individual and the untouchable societal structure. The individual could no longer be understood without the agency of individuals who use and produce artefacts. This meant that objects ceased to be just raw material for the formation of logical operations in the subject as they were for Piaget. Objects became cultural entities and the object-orientedness of action became the key to understanding human psyche." (ENGESTRÖM 2001, p.134) [15]

ENGESTRÖM acknowledges not only cultural artefacts but also the societal structure in which human activity is embedded. Thus, the triangles below the top-triangle symbolise the mediating conditions underlying all use or application of instruments—social rules, the community, and the division of labour. ENGESTRÖM further points out that any kind of production activity also includes consumption, distribution, and exchange. These dimensions of an activity system are assigned to the three triangles at the bottom of the figure. ENGESTRÖM proposes that contradictions can arise between any of the six points of the activity triangle. For him contradictions are "historically accumulating structural tensions within and between activity systems". They "energise" activity systems, and therefore they can be considered as the motor of development. Activity permanently changes by dealing with contradictions that become manifest in limits, dysfunctions, disturbances, ruptures, breakdowns, and clashes, which then demand solutions (2001, p.137, p.140). [16]

While ENGESTRÖM tries to realise the complex socio-historical structure of activity, the problem of his approach turns out to be exactly the opposite of HOLZKAMP's approach, namely a certain neglect of the subjective problematic. ENGESTRÖM presupposes that people confront themselves with specific contradictions, and that they gain the motivation to address and solve them, but he underestimates the probability that they only comply with and accommodate themselves to them in order to avoid any conflict. Because ENGESTRÖM interprets contradictions mainly as dysfunctions between the six aspects of an activity system, failing motivation or internalised constraints do not appear as a possible obstruction for learning. Sometimes he even speaks about the activity system itself as a subject and it seems almost as if human development is inevitably achieved when contradictions occur—like a system that reconstitutes itself by autopoiesis: "Activity systems realise and reproduce themselves by generating actions and operations" (ENGESTRÖM 2005, p.63). [17]

5. Analysing Self-dependent Forms of Learning

For an enquiry into self-dependent forms of learning (LANGEMEYER 2005a), I developed a new approach to learning processes and contradictions different from both HOLZKAMP and ENGESTRÖM, but still preserving many of their insights. The empirical study dealt with a vocational course that provided a qualification in programming software-tools, applications and databases. The costs of this state-subsidised training programme were kept low through adopting relatively self-dependent learning practices, among others "e-learning" and

"training-on-the-job", in a 14-month-apprenticeship (which was partially financed by private companies). By interviewing seven trainees (five men and two women, 27-52 years old) four times, during 2002 to 2003, I tried to reconstruct how each participant coped with the responsibilities of learning under these changed conditions. To compare the trainees' perspective with that of the teachers, I also arranged a group discussion with the latter. The first contact with the trainees was at the beginning of their apprenticeship, after they had completed an eight-month course to learn the basics of programming. Two further interviews followed, and the last contact was after 15 months, one and a half months after they had finished the course. To analyse each learning process I focussed on three dimensions:

1. On the relationship between the learner and the subject matter, or in particular the object of work activity that emerges in a community of practice which is often (but not necessarily) characterised by hierarchical structures and a certain division of labour etc.
2. On the relationships among a group of learners evolving through exchange, cooperation and collaboration, though sometimes limited by isolation, constraints and competitive rules.
3. On the question of how the learner relates to him- or herself, how he or she feels and thinks about the requirements and the possibilities of learning in relation to his or her abilities or competences, and in particular on the question of how his or her motivation for and the trajectory of learning is shaped. [18]

In this light three central concepts were elaborated:

1. *Forms of cooperation:* to highlight social exchange, collaboration, and moments of intersubjectivity (i.e. shared meanings, experiences, and mutual recognition) that together comprise the range of new possibilities to act and to think.
2. *Modes of participation:* to show the changing relationship of the learner within a community of practice.
3. *Aspects of situatedness:* to reconstruct the limits or obstructions for learning processes due to the physical, the mental, or the social situatedness of a learner.

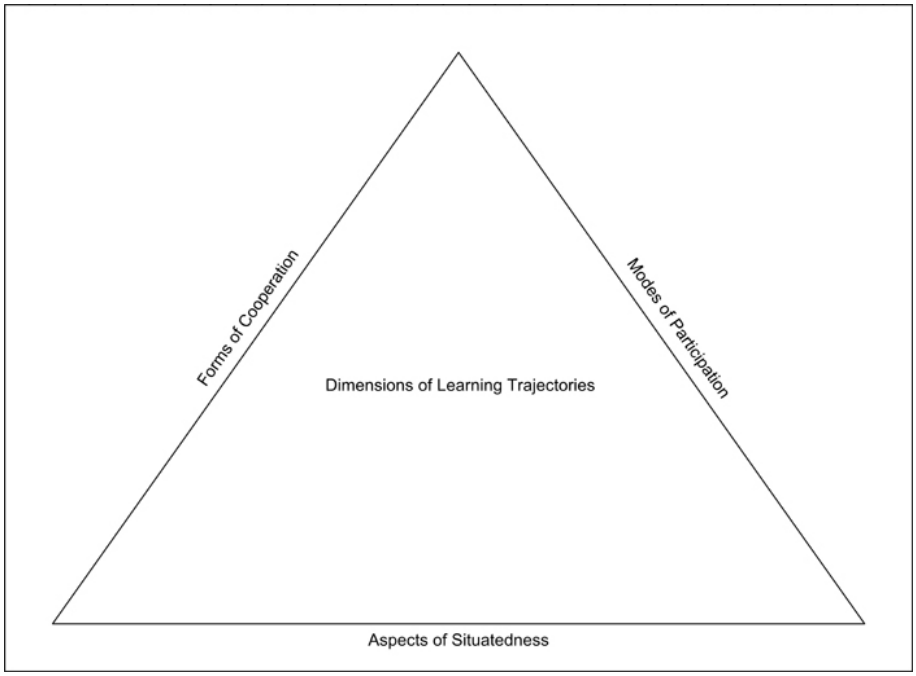

Figure 2: Three dimensions of learning trajectories [19]

The subsequent elaboration of these concepts was guided in part by DREIER's work on participation—which he saw as a key concept in the development of "a theory of the person" that "conceptualizes subjects as always already involved in social practice": "If we acknowledge that individual subjectivity is based on the potentiality to realize action possibilities (Holzkamp 1983)", he argued,

> "we must also admit that subjects encounter and realize these possibilities as aspects of social contexts of action in which they take part albeit perhaps in restricted, problematic and indirect ways. In fact, most human activity is only meaningful because it presupposes a common social practice of which it is part and of which we have a more or less common understanding (Taylor 1995). This participatory dimension of subjects' activities is crucial to the quality of their relationships, their understandings, orientations, feelings and thoughts, and it is crucial for subjects to recognize and pursue this communality. In order to direct their activities subjects must, therefore, think beyond themselves from where they stand into the structures of social practice of which they are a part. And in order to understand subjects' actions, thoughts, and emotions we must study the ways in which they take part in social practice." (DREIER 1999, pp.5-6) [20]

Here DREIER provides a notion of participation which seems wider than that with which I began. It comprises not only the relationship of an individual to its community, but also its situatedness as well as those forms of cooperation in which it takes part. With the three-dimensional approach introduced here, I will not deny this general interrelation between modes of participation, forms of cooperation and aspects of situatedness, but only differentiate *within* this

interrelation of participation processes. This differentiation shall help to reconstruct more precisely how contradictions in learning trajectories emerge. [21]

Methods of interpretation were developed as a way of reconstructing the subjective standpoint of the learners along their specific "horizons of meaning" (BOHNSACK 2003) and action possibilities. Then this reconstruction was confronted with theoretical concepts like "defensive" or "expansive learning" (HOLZKAMP 1993), "legitimate peripheral" or "full participation" (LAVE & WENGER 1991) as well as others that have been elaborated in former empirical studies like distinguishing between an "individualised" and a "cooperative form of responsibility" (LANGEMEYER 2005b). These distinctions proved useful in detecting the extent to which, and form in which, self-determination could be realised. At the same time, the concepts were challenged and interrogated in their application to the empirical data. [22]

In what now follows, I will present some general insights about the practice of work-based learning and then two cases that illustrate how learning was conducted under contradictory conditions. Finally, I will discuss how the outcomes and the effects can be grasped. [23]

6. The Reconstruction of General Problems in the Training Program

By examining the starting position of the trainees within their apprenticeship, especially in relation to their interests, aims, biographies, their tasks and the range of their responsibilities, it became obvious that not many in the course were confronted with optimal learning conditions. Due to the economic crisis in the new IT market in 2002, several trainees were forced to accept apprenticeship positions with companies whose primary interest was in obtaining cheap labour. Some companies were willing to let the apprentices learn by themselves, but in such circumstances they lacked the capacity to provide adequate support. Thus, some trainees were assigned tasks that did not entail any challenges in programming, and others were learning in isolation. The rest did have supervision and were integrated in work groups, which provided support throughout the apprenticeship. [24]

The situation posed by the economic crisis was a new one for the institution organising this vocational problem. Its teachers had no idea how to try to address the problem of the lack of suitable alternatives for the apprentices. Moreover, the financing of the institution depended upon the number of trainees, therefore, they could not risk any dropout and did not recall apprentices from companies where the learning conditions were proving unsatisfactory. However, instead of reflecting upon this specific contradiction, they were mainly pre-occupied with personal conflicts arising between them and the trainees. Ultimately, they perceived the whole problematic only in a personalised manner. [25]

The trainees, on the other hand, were deeply disappointed that their scope to find regular employment in their company through work-based learning had diminished. Given the condition of the labour market, it made them feel under

pressure. They then hoped at least to achieve the best qualification possible in order to increase their prospects when applying for another job. They hoped that their teachers would compensate for the poor conditions of their work-based learning in their classroom learning, but such hopes were not met. During their courses (partially organised on an Internet platform), the teachers tried to foster self-dependent learning and collaboration among the trainees, but they did not know how to deal with resistance to this and with the competitive behaviour that split the group. Since they were not always in direct contact with the group, they could partially deny the seriousness of the conflicts. Instead of paying attention to the reasons why learners do not cooperate with others, and instead of dealing with their objections as learning difficulties, the teachers tended to blame the trainees for deficiencies in "social skills" and "learning competences". This aggravated the conflict between the teachers and the trainees so that confidence was eroded and possibilities for improving their relationship and building cooperation and mutual support were confounded. [26]

Several trainees were able to benefit from collaboration and support in forums, newsgroups, and mailing lists in the Internet. But this was undermined by the fact that they had to consider everything they had learned as company-owned "know-how". Otherwise they would have been violating an unwritten rule that one must be loyal to the firm and its strategies to compete in the market. Thus, they had to deal with knowledge as a form of capital rather than a common good, and so refused to share their knowledge and their experience with others—even though this would have provided the only realistic possibility of finding and developing better solutions. [27]

In general, all of this brought about a contradictory dynamic in the pedagogical relationships. Given the precarious economic situation of the institution, the teachers ultimately began to see the trainees as the source of income generation rather than as participants in education or learners. The trainees on the other hand were frustrated that neither the scope to learn, nor the necessary support for learning, was sufficiently ensured. In previous courses, the fact that a majority of trainees had good prospects had helped to ensure the success of the training, but now less than 30% had such prospects. Due to all of these reasons, sustainable learning and development were severely limited and the program substantially failed to achieve its goals. The precise trajectory of such failure differed in each case. In what follows, to exemplify such differences in learning trajectories, two case studies are briefly discussed. [28]

7. First Case Study

Mr. Roger[1] (27) undertook practical training in a department that programmes SAP-applications for the administration of a company that sells and leases copy-machines. Although he was working in an office next to other programmers, his own tasks did not result from direct participation in the broader work process. Instead he received them from a supervisor. Therefore, his learning took place in a rather traditional form—one in which self-dependent activities were allowed only within certain limits. [29]

Very soon after beginning, he realised that his supervisor, who was primarily in charge of running the department, had too much work and too many responsibilities with giving instructions and checking the results of all those under his charge. The problems Mr. Roger got to work on were challenging and seemed to be conducive for learning SAP, however, from time to time he found himself waiting for further tasks. Because he felt uncertain about finding new tasks and solutions on his own initiative, he sometimes filled the time gaps by playing games on the computer. On one occasion the supervisor's own immediate superior observed this, and expressed his discontent to the supervisor. Mr. Roger then started to worry about his supervisor's view of him. He perceived the supervisor as being under the pressure from his own superior, and he believed that this would make the supervisor exert pressure on his supervisees. Indeed, he experienced a certain pressure himself. He reported that, at the outset, the supervisor wanted him to work quickly. But after a while, he was criticised for the quality of his work, and for failing to run enough tests on the programs. Accordingly, Mr. Roger was confronted with a conflict of aims: "Shall I hand in my solution as fast as I can so that I meet the supervisor's time expectations, or shall I scrutinise it carefully so that it is perfect before I show it to him?" In this difficult situation, he was also afraid to ask the other programmers in the office when he needed help, because he was afraid that his supervisor would see this him as "bothering them" or as "stealing their time". But the more he abstained from collaborating with others, the more he became dependent on his boss. In spite of stress and at the expense of a self-determined way of learning, he asked for more work in order to exceed the supervisor's expectations. Furthermore, he interpreted these contradictory demands as challenges to learn more. [30]

Yet this did not enhance Mr. Roger's prospects of employment with the company. The company management declared the SAP-department unprofitable and decided to close it, so that the only prospect for the apprentice turned out to be the project that would shut down the department—thereby terminating any possibility of longer-term employment with the company (since he was specialised in programming in SAP only). But ultimately, he was not even hired for this short-term project. [31]

Interpretation: The striking point of this learning trajectory is not only that learning activities were undertaken under the threat of unemployment, but that they were

1 Names have been changed.

confronted with a conflict of aims and contradictory perspectives. Thus, although he was motivated to work hard and responded with interest to the challenges of programming, the trainee learned in a defensive way. The term "defensive" in this context is not opposed to the adjective "expansive", but rather to "offensive". In this sense, one can say that expansive and defensive aspects of learning coincided in this trajectory, and to be more precise, they characterised this education process not alternately, one after another, but simultaneously: The adoption of a defensive position, established by the confrontation with contradictory aims, was a precondition for the possibility to learn—within certain limits—in an expansive way. [32]

The more general contradiction consists in the fact that work experience has become a paramount objective for the trainee's success in this firm as well as on the labour market, but within the prevailing conditions of work-based learning, forms of cooperation, exchange, and mutual support were limited. This reflects the subordination of pedagogical relationships to the prevailing power structures. These eventually narrow the scope for self-determination and development, for learning activities can only take place as long as they fit with the established work procedures, the pursuit of profit, and the dominant cultural forms at work. Thus, paradoxically, self-organisation was required of the trainee, while at the same time independent thinking and self-determined learning were discouraged. [33]

8. Second Case Study

According to LAVE and WENGER (1991) participation is only adequate for learning when it starts at the "periphery" and not in the "centre" of a community of practice. The trajectory of an apprenticeship should be characterised by a "legitimate peripheral participation" leading in a centripetal movement towards a full membership in the community. In the next case, however, things turned out to be almost the opposite of this ideal. [34]

Mrs. Brooke (40) got a position for practical training in a multimedia-agency. The agency was actually looking for a project manager because one of their managers was on maternity leave. Mrs. Brooke did not have any experience in programming, but hoped to improve her quality of life by becoming an IT-specialist. She reported that in her previous jobs she always worked with people in a call-centre for a magazine, for example. These (typically female) jobs were poorly paid, so she hoped for a better quality of work. Having been a single mother since she finished high-school (*Gymnasium*), she had never achieved any professional qualification. She did not expect any improvement in her situation without further education, and therefore decided to undertake the training program that I was to investigate. [35]

After the eight months of study, it was very hard for her to find a company that would employ her for a traineeship. Since many of her job applications were rejected, she compromised when she got the offer from the multimedia-agency, and accepted responsibility for managing a project (developing a CD-ROM for testing the hearing abilities of children) instead of getting involved in

programming tasks. She tried to cope with this situation by proving her commitment to the agency. Thus, she expected to enhance her prospects for employment and hoped to learn the technical and vocational skills along the way. Having accepted her teachers' suggestions made during class, that one would have the best chances for employment with "all-round"-competences, her approach seemed a sensible one. [36]

From an organisational point of view, Mrs. Brooke's position was higher than those of the programmers, but her level of expertise was insufficient to keep up with her team members. At the beginning, this arrangement did not seem too problematic. However, after 5 months of her traineeship, in the year 2002, the agency was affected by an economic depression. Struggles ensued between employees and managers/bosses, especially as the former were forced to waive one third of their salary in light of financial shortfalls. Suddenly, it became very difficult for Mrs. Brooke to manage her team and the project successfully. She discovered that one of the bosses had removed several members from her team and assigned them to other tasks without informing her in advance. In light of this conflict situation, she tried to concentrate on her own learning progress again, and worked on a programming project that would count towards her final exam. But, her colleagues (male) were no longer willing to support her in this. She sought a meeting with her boss to try to resolve the situation, but her approach was rejected and she was advised not to become "hysterical". Then she turned to one of the teachers (male) and gave an account of the difficulties, but again she felt that he wanted to suppress problems by telling her not to overreact. According to Mrs. Brooke's reports, the situation seemed to be overly determined by gender relations. Ultimately, her achievements remained on an elementary level, and proved insufficient to have a reasonable chance of obtaining a job in the IT-sector. [37]

Mrs. Brooke not only complained about this stalemate, but also blamed the teacher and the apparent lack of organisational capacity to respond to the problems she was facing in the traineeship. According to her, the teacher ignored and underestimated her problems. Thus, she became very pessimistic about any further possibility of improving her occupational prospects and concluded that "the (social) structures—within and outside of the body—were interlocked so that one could hardly intervene". For obvious reasons, her experience affected her existential orientation and outlook, because she "always had the feeling that (she) was playing a game that was not (hers), and that (she) would never be a part of"—including "the IT-world". [38]

Interpretation: At first sight, Mrs. Brooke's learning attitude could be characterised as defensive learning (in HOLZKAMP's sense), because she resisted the personal responsibility and expected her teachers to feel responsible for her education. However, the problem in her learning trajectory did not concern a lack of motivation due to resistance. Her motivation was in fact rather high since she longed for a fundamental change in her life, but in such a problematic context, she could not find a way to respond to this wish for occupational advancement in her working and learning activities. Therefore, the crucial point seems to be the

loss of a reasonable and realistic objective on which to focus her motivated efforts. In other words, the fundamental problem lay in a divergence between the initial motive to learn and the goals that could bring about its fulfilment. This divergence was in place from the outset of the traineeship, when Mrs. Brooke had to accept the compromise position of being in charge of project management instead of actually doing programming, and this situation was then subsequently aggravated through the mode of participation that pushed her into a position where she was deprived of the necessary cooperative relationships to complete her work. [39]

In general, the contradiction in this case seems to lie in the following problematic. Cooperation at work has become increasingly necessary, therefore the relationship between managers and employees often assumes a rather friendly and cooperative form. But this cooperativeness primarily exists for the purpose of ensuring productivity at work. Therefore, the conflicts arising from the economic crisis could not be dealt with in what might otherwise have been considered a "fair" manner. In this situation, a contradiction arose between the form of subjectivity needed to provide the flexibility sought by employers, and the premises necessary for learning to actually bring about this flexibility in work processes. The trainee's struggle to gain the necessary competence as well as a flexible identity (adaptable to the demands of the IT-work) was radically undermined by the absence of the prerequisites essential for their achievement. Consequently, within the struggles of this community of practice, the attempt to negotiate meaningful aims, to find fruitful cooperation and participation, to discover useful methods of learning, and a new (professional) identity were thwarted. The articulation of problems shifted to matters of gender relation, thereby obscuring how power structures were (re)asserted. [40]

9. Contradictions Revisited

In light of these case studies, we may come to understand the issue of contradictions in learning processes in a better way. The crucial point of the contemporary societal contradictions is that they do not only appear as a dysfunction of an activity system, but also profoundly affect human relationships and societal praxis so that collective problem solving turns out to be an option that is seldom achieved. Because individuals often have to deal with the fact that they do not possess the capacity to resolve societal contradictions, they are forced to try "to find a way through", and ultimately to adopt forms of behaviour which are likely to obscure the fundamental problematic. [41]

Modes of participation and forms of cooperation and their impact on the learner's situatedness are then most decisive for the trajectory of self-dependent learning processes, and whether the learner's engagement can unfold in a self-determined manner through confronting contradictions or is canalised or thwarted by prevailing conflicts and constraints. Thus, resolving societal contradictions requires (inter-)subjective resources that must be generated by developing certain modes of participation and forms of cooperation. To take this inherent complexity of contemporary praxis into account, expansive learning needs to be

conceived not only in terms of achieving an optimised activity system, but also in terms of extending action possibilities. Other aspects which need to be taken into account include the critical analysis of certain forms of practice, their contradictions, and how they might be changed by generating cooperative relationships. Consideration might also entail how teachers and learners can relate to self-dependent forms of learning through new alignments for mutual support, rather than in an individualised way. Of course, these aspects of expansive learning are not entirely neglected by ENGESTRÖM or HOLZKAMP, yet this question, of how one could excavate or generate those action possibilities that could help master the challenges of collective action in a contradictory situation, may not be sufficiently answered by underestimating either the subjective or the social premises for change. With the extended approach to expansive learning introduced here we may come closer to discovering the scope for self-determination. [42]

Accordingly, the analysis of contradictions or conflicts at work places has become a major concern of adult education—and with it the question of how participants become aware of the general societal structures currently undergoing socio-technological change. For the arrangement of self-dependent forms of learning, especially for training-on-the-job or work-place learning, it would be necessary to monitor participation and cooperation, and to evaluate the assignments for learning and the support that is given, because these aspects heavily influence the course of learning trajectories. The critique of these interrelated aspects can help us to break free from obsolete, petrified, and futile forms of education. The alternative, yet, is not always the opposite of the established practice—a simple negation of its problematic. To find a "solution" often means confronting new contradictions. Thus, the process of change is likely to be contradictory itself. In order to understand the societal complexity of these conflicts and problems, we can turn to wisdom of Bertolt BRECHT: contradictions are ultimately our aspiration. [43]

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