



Abstract In this article I argue that creative acts cannot be confined to the individual. Creativity can be seen as a meeting between an individual and a wider activity system. This argument is related to the claim that a zone of proximal development (ZPD), the concept connected to the cultural-historical psychologist Lev Vygotsky, is both an internal and an external relation between an actual and a potential developmental zone. I shall suggest that institutions can facilitate creative potential and development if the associated members are trained or already have potential developmental zones answering to the actual development of the members of staff. The argument is supported by two case studies—one from fieldwork in an institution of higher education, and one from an institution for the mentally handicapped—and supplemented with a few historical examples.

Key Words creativity, institutions, zone of proximal development

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Institutional Creativity: The Relational Zone of Proximal Development

How is creativity acknowledged in institutions?

According to the *Merriam-Webster Dictionary* (10th edition), creativity is defined as the quality of being creative, that is, the ability to create—and the ability to create is in turn defined as to bring into existence something new (*Merriam-Webster's Collegiate Dictionary*, 1995). Much work has dealt with understanding the creative act in itself. What goes on when great people like Einstein and Mozart think creatively? (See, e.g., Gardener, 1994; Ghiselin, 1952/1985). Rather than taking what is called creativity for granted, which only allows discussion in terms of individual capacity, I assume, as Vera John-Steiner (1997) does, that creativity can be seen as a relational development that cannot be separated from sociocultural circumstances. That creative thoughts have to be scaffolded has already been noted by John-Steiner in *Notebooks of the Mind*, her thorough study of what she calls 'experienced thinkers'. Creative thought appears in conversations between scientists

or other thinkers, and experienced thinkers form apprenticeship-like relations with creative young people (John-Steiner, 1997). Likewise, I am inspired to see this dynamic system as perpetuated by cultural-historical interaction between human beings and cultural artifacts, where creative thinking must be seen as a dialectical relationship between the human being and her or his social environment.

What concerns me here, though, is not the exploration of the relationship between external and internal forms of symbolization (John-Steiner, 1997), but what can be analyzed as different institutional conditions for creative development. This difference between creativity-facilitating relations in general and creativity-facilitating or creativity-thwarting relations found in institutional-based cultural-historical activities leads to a discussion of the relational aspects of zones of creative development. Apart from being a relation between a mentor and an apprentice, creativity can be seen as a meeting between an individual and a wider activity system. This argument is related to the claim that a zone of proximal development (ZPD), the concept connected to the cultural-historical psychologist Lev Vygotsky, is both an internal and an external relation between an actual and a potential developmental zone. I shall suggest that institutions can facilitate creative potential and development if the associated members are trained or already have potential developmental zones answering to the actual development of the members of staff.¹

In the first of the cases I am going to present to you, the notion of activity systems can be used to analyze activities at a higher educational institution—namely a physics institute where I conducted fieldwork between 1996 and 1998.

The Grid-Ball

The fieldwork was conducted as what can be termed a positioned learning process, where I—with the consent of the students and authorities of the institution—participated in the daily life at the institute positioned both as an anthropologist and as a physics student (see Hasse, 2000). Textbooks in physics, read before I started on the fieldwork, seemed to have fulfilled the most eloquent objective of the Age of Enlightenment: to liberate reason from imagination (Hastrup, 1995, p. 68). What took me by surprise when I entered this particular universe were the particularly many male students' preferences for fooling around, playing with equipment, telling jokes and having science fiction discussions. Instead of the dreary world of the textbook the world of physics met with the world of fantasy, belief and creativity,

seemingly beyond the world of scientific practice, but in reality an integrated part of everyday life.

These phenomena, apparently not connected to the learning of science, gradually became important tools in unlocking some of the mysteries of institutional life. One such mystery was why some male students seemed to receive positive evaluation from the institution while other students—male as well as female—felt excluded or at least not appreciated in the same way as those who were often praised as creative in playing around.

I shall now give you an example of an action regarded as an act of creation in this particular setting. At one point during fieldwork I was involved in a group with a male and a female student, Alexander and Anni.² Picture the following situation: the three of us are sharing a computer, and Alexander, known as an excellent computer programmer, is placed in front of the keyboard.

The textbook and the teacher have asked us to make a two-dimensional grid on the screen useful for setting up data results. A problem has been posed: how do we, by writing in numbers, fill out the screen with a perfect grid? All the steps for solving the exercise are explained in the textbook. Anni and I hang in there as best we can, while Alexander moves on. Anni is interested, makes suggestions, and the work progresses. We go back and forth between long columns of numbers, and a visual picture of the flat grid appears.

But then, all of a sudden, the grid-work on the screen starts rising and takes the shape of a three-dimensional hill. Without our knowing, Alexander has begun to play with the exercise and is now trying to make a three-dimensional grid in the shape of a completely round grid-ball.

Anni protests and says she can no longer follow what's going on. She wants to finish the exercise—and she is afraid that we shall run out of time. In the meantime the teacher, who walks around between groups giving advice, has approached. Anni starts to explain why we have not yet finished, and within this explanation is an excuse for having played with the exercise. To our great surprise the teacher does not seem to mind—on the contrary, he praises Alexander's initiative, and expresses the opinion the 'ball-game' is an exciting creative innovation. Alexander is encouraged to go on, leaving Anni clearly frustrated and confused with the teacher's interpretation of the situation. After a while Alexander kindly consents to resume the exercise in the textbook, but now Anni is a much more passive onlooker than before, and, after class, complains that she is afraid she will never learn.

Double Bind

How are we to understand this episode? From the point of view of textbook learning, the goal obviously is to teach students how to make a grid—and the teacher has to see that this is done. By allowing Alexander's play with the exercise, however, the teacher actually makes it difficult for Anni to learn. Alexander's act is seen as an act of creation, but not every action we make in our everyday chores at the institute is seen as creative. So why is this 'leaving the textbook' regarded as such—to Anni's frustration? If educating students the best way possible was the only intent, the action of the teacher would be hard to explain indeed.

As we are situated in an institution of higher education, in the context of textbook learning it seems obvious that what blocks this kind of learning must be rightfully protested against—as did Anni. As the textbook set up the actions to be taken—carefully thought out by pedagogues—the actions of Alexander and the teacher—accepting a complete deviance from the textbook demands—appear to need explanation. From Anni's point of view the whole situation takes on what, adopting a theoretical concept used by the anthropologist Gregory Bateson, can be analyzed as a 'double bind'. Bateson operates with the assumption that in a certain sense the 'same context' can be reflected at different levels, and shows that often frustration stems from discovering that, contrary to what was initially thought, we do not know the context (Bateson, 1972/1989, pp. 276–277). This can occur when a person receives two contradictory statements at one time and no meta-commentary statement is possible (Bateson, 1972/1989, p. 208). It can also occur if you receive a message that contradicts everything you have learned and have come to take for granted. You can no longer find any meaning in what goes on. The result is confusion, frustration and—in the worst case—even schizophrenia.³ No matter what we do, we are unable to understand why we get praised or scolded (Bateson, 1972/1989, pp. 206ff.).

Contexts frame our interpretation of situations. Many pedagogues might have scolded the teacher for being a bad teacher, for being unhelpful, and maybe even for letting a student down. The teacher's reaction is not meaningful to Anni, because her conception of what contextualizes their common interaction turned out to be wrong. What really makes Anni frustrated is that she does not understand the relational aspect of creation. Only by understanding the wider context will the initially incomprehensible act become understandable.

Here activity theory can be a helpful tool in enhancing our understanding of what makes the actions of the teacher and Alexander meaningful, as activity can be seen as a specification of what is meant by context (Engeström, 1993, p. 67).

Creation in Activity

In activity theory, activity is first and foremost defined as being collectively driven by an object-related motive, as summarized from the works of Lev Vygotsky, Alexander Luria and Aleksei Leontiev by Yrjö Engeström, Reijo Miettinen and Raija-Leena Punamäki-Gitai (1999).

For Leontiev (1981), what fundamentally separates human beings from animals is our collective consciousness, permitting a socially created unity of materiality and ideality. Engeström et al. (1999, p. 4) note that this mediation by a collective of human beings involved in an activity can be seen as a further contribution to the original triangle proposed by Vygotsky, where the subject's actions—between stimulus and reaction—are mediated by cultural tools and signs (Cole & Engeström, 1993; Vygotsky, 1978, p. 40).⁴

Leontiev's (1981) theoretical approach enables an analytical distinction to be made between activity, action and mere physical operations of the body in the same situation.

Activities direct themselves at a collective object, which motivates the entire activity. Actions direct themselves towards a goal, the meaning of which arises in connection with the general activity. Finally, the separate operations are connected to the actions conditioned (and thereby also limited) by the environment.

The collective object can seem distant from the position of the single individual. Yet every simple movement we make can be analyzed as connected to broader activity systems. What holds the object in view is that each of the individuals has a shared consciousness of the activity as a whole. To be able to act in relation to the collective object, the individual cannot act on impulse but might even be forced to counteract her or his own immediate interests.

Leontiev used the scenario of a hunting party to illustrate this point. Normally we would assume that an animal or a human being in need of meat would find a piece of game and hunt it down to devour it. In the collective activity of the hunt the beater does exactly the opposite. The game, the object of the activity, approaches the beater. Instead of hunting it down, following his immediate desire for meat and fur, he chases it away—in the direction of the hunters. In the complex activity the action is motivated by the shared collective

consciousness telling the beater that eventually the frightening of the game leads to a satisfaction of his need (Leontiev, 1981, p. 212). Translated to Bateson's vocabulary, we could say that the beater's action is contextualized by his understanding of 'hunt', which leads him to expect certain actions and reactions from his fellow hunters. Engeström has further enhanced Vygotsky's original triangular model and Leontiev's levels of analysis by adding mediation by other human beings forming communities, rules and divisions of labor (Engeström, 1987, p. 154).

Following Leontiev, there is coherence between the beater's physical operations (clapping his hands), his actions (chasing the game away) and the activity (the hunt). Following Engeström, the hunting party form a community based on certain rules of conduct and a specific division of labor that differentiates the actions of the beater from the actions of the man with the gun. The whole of the activity includes all participants' expectations of future benefits from their joint action.

Learning Activity

In the 'grid-ball' situation we find, as usual in institutions of higher education, a community of apprentices and teachers, following rules for how to behave in learning situations. The teacher must teach textbook material, and the students must take notes and learn, as the object of the activity is explicitly to teach students. In this episode this textbook contextualization is challenged by the teacher's reaction to Alexander's play, which obstructs textbook learning. This raises the question of how we can tell what context we are acting in—and this again points to the problem of learning a context.

Rephrased in terms of activity theory, we can ask how each individual involved in an activity has become aware of the shared collective activity. Engeström has found a way to analyze this by connecting cultural-historical activity theory with Bateson's levels of learning (Engeström, 1987, p. 140).

In 1969 Bateson proposed a general theory of learning based on a hierarchical model on five levels. At level zero we find what he terms 'zero learning'—a specific response that is not subjected to correction (Bateson, 1972/1989, p. 284). The individual cannot make any inferences from the responses given by the environment and cannot differentiate between responses. At level I there is a change in the specificity of response by a correction of errors of choice within a set of alternatives. Here habits are formed in choosing the right answers again and again

(as in Pavlov’s conditioned reflexes). In terms of collective activities the beater knows it is correct to frighten the game away, but not why, because he is acting without reflection.

Level II is defined as a change in the process of learning I. The individual begins ‘to learn to learn’, as Bateson (1972/1989, p. 294) puts it. The set of alternatives presented to her or him at level I can themselves be subjected to inference. This level implies learning to act in the whole system or the collective activity as the context for actions. Level III is a change in the process of learning at level II—implying learning to change the system or activity itself. Finally, level IV comprises a change in the learning of level III—and here we possibly move beyond human activity systems to the ‘whole’ of evolutionary processes. What Bateson fundamentally describes here is the process of learning about context in its wider sense (p. 293).

In a schematic form, we have a gradually increasing awareness of the individual belonging to a wider context or activity as a collective subject when we act within the whole of the context. In the three-level model proposed by Engeström in *Learning by Expanding* (1987, p. 154), we find the activity driven by a collectively shared motive at the uppermost level. Beneath we find the individual level where an action is driven by a goal. Finally at the bottom level we find the automatic operations driven by the conditions and the tools at hand. My simplified version of Engeström’s schema is presented as Table 1.

The ZPD

From this point of departure it should be clear that an understanding of the activity from the teacher and Alexander’s point of view could make their actions meaningful. My argument would be that the actions of the teacher and Alexander are in some way connected on another level than the actions of Anni and the teacher. That some teachers praise student’s playful acts as creativity can be connected to what I regard as the relational aspect of Vygotsky’s theory of the ZPD.

This theory concerns the human capacity for development aided by

Table 1. Engeström’s characterizations of the hierarchical structure of activity

Level of analysis	Leontiev	Bateson	Engeström
Collective motive	Activity/motive	Learning 3	Collective subject
Individual action	Action/goal	Learning 2	Individual subject
Automatic operation	Operations/conditions	Learning 1	Not-conscious

Source: Adapted from Engeström, 1987, Table 3.1.

other human beings. Although Vygotsky's thinking was original, he was clearly indebted to the work of his contemporaries, as noted by van der Veer and Valsiner (1991, pp. 347–348). Rather surprisingly, Vygotsky himself states that the concept of ZPD, one of his most noted contributions to contemporary psychology, was not originated by him but arose in the work of American and German authors. Though many inspirational sources have been discovered, it has so far not been possible to find proof that his theory actually was formulated by others (van der Veer & Valsiner, 1991, p. 347). It seems likely that it is a good example of Vygotsky's own creative synthesizing.

His exemplification of the concept of the ZPD deals with two pupils in a school who have the same actual level of development. This puts them on a par when asked to solve an exercise—but with the aid of the teacher it turns out that they have different ZPDs. One student moves much further ahead than the other when helped by the teacher (Vygotsky, 1978, pp. 74ff.). The ZPD is defined as 'the distance between the actual developmental level as determined through independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers' (Vygotsky, 1978, p. 86). The discussion of the ZPD in Vygotsky's day was very much connected to children and their cognitive developmental potential according to learning through teaching and maturational processes (van der Veer & Valsiner, 1991, p. 333). This meant that Vygotsky mostly worked on the concept of a ZPD as a situation between a grown-up with an actual and children with ontogenetic potential zones of development. As stated by Scribner (1985), much of Vygotsky's theoretical thinking can be applied to adults as well—not only in the ontogenetic or the phylogenetic sense (and Vygotsky concerned himself with both aspects), but also as relevant theories analyzing everyday interactions between socially interacting adults.

Transferred to the episode around the grid-ball, Alexander and Anni are not on a par with each other even at the outset. Alexander simply knows more about computer programming than does Anni. Nevertheless, when the episode starts, she is learning and participating actively in the solving of the exercise. When it ends, however, she seems to be almost giving it up, whereas Alexander has been encouraged to go on by the teacher.

For Vygotsky, the teacher's most important task is not to implant textbook material in the child but to point out the road for development. The teacher should create a ZPD, that is, 'to engender a series of processes of internal development we need the correctly constructed

processes of school teaching' (Vygotsky, 1933/1935, p. 134, cited in van der Veer & Valsiner, 1991, p. 331). Though Anni has been trained to some extent in computer programming and also will be in the future, in this sense the teacher in the episode fails his obligations, as he is not trying to help the student who mostly needs help to enhance her potential development.

This might be connected to a puzzling study by Vygotsky. In his work on the ZPD he came up with a possible answer to the interesting and mystifying findings by researchers in IQ and schooling. Children with an initially high IQ tended to lose IQ points and children with an initial low IQ tended to gain points during their time at school. So if one regards textbook learning as the only yardstick, it could be argued that the children with high IQs would quickly appropriate the knowledge and then develop no more, whereas the children with low IQ at the onset would keep on developing through training till they reached the same level as the high-IQ children. Vygotsky suggested that children with a low IQ profited more from schooling than did children with high IQ scores, but that profits rather than IQ depended on whether the children possessed a large or a small ZPD (van der Veer & Valsiner, 1991, p. 338). There are many problematic elements in his analysis. As criticized by van der Veer and Valsiner, this indicates a cognitive development that proceeds in a linear fashion and the dynamics of development pictured against a static environment. So it is possible, as Vygotsky would have it, for children with initial high IQs to 'spend' their ZPD (van der Veer & Valsiner, 1991, p. 343).

If the teacher had concentrated on using his own actual knowledge of textbook learning to teach the two students, we could indeed say that Alexander in this situation would have spent his ZPD—as he would already know what the teacher would teach. Anni, on the contrary, would benefit and develop from the teacher's instruction—depending on the size of her ZPD.

From the point of view of learning to make a grid on the screen, the actual situation is stale. We can even say, with Bateson, that it is a case of non- or zero-learning. Neither Anni nor Alexander learns more than he or she already knew about how to solve the exercise. This does not mean, however, that neither Anni nor Alexander learns something new. To the extent that their ZPDs are different in relation to the teacher's actual development, they learn something different.

The Relational ZPD

In Leontiev's simple example, the beater and the hunters have a truly shared consciousness of what a hunt is all about. In many other situations involving human beings, the sharedness of the object of the activity, what rules to follow, how the labor is to be divided and who does what in the community might not be so simple.

Though people might explicitly agree on the definitions of the object of institutional activities, they might still have different ideas as to the direction of developing the institutions. This can, even within the same institutional framework, create different teachers' responses to different students' actions, which leads to different patterns of learning. I have proposed adding something to Vygotsky's model, namely that the teacher himself also has an actual and a potential developmental zone (Hasse, 2000, pp. 303–304). This view makes it possible to argue that what is called a ZPD is always relational and—as I have stated with Engeström—is connected to activity systems.

One characteristic of higher educational institutions is that they often comprise two activities in the same institution: teaching and educating students, and doing research. In the educational activity the students are taught to become good students, which is exactly what educational systems do, according to Jean Lave and Etienne Wenger (1991).

In physics, playing with everyday objects and testing theories by making playful physical experiments seem to be part of the physicist's body language (Hasse, 2000). The tools—such as springs, strings, bicycle wheels, but also computer programs—become a constant source of new jokes and games between some, primarily male, students. These episodes with playful males were frequent at the physics institute and I witnessed a number of these situations where playful students got praise from the teacher for their creative and innovative thinking even when their acts prevented them from fulfilling the demands of the textbooks. In this particular setting playing with the tools given to solve a particular exercise might be regarded positively—not because it makes good textbook learners of the playful students but because play is acknowledged by most (but not all) teachers as a road to new discoveries of the physical world around us. Through play students enhance their understanding of the relation between theories and the physical world. In recognition of this, the students are encouraged to participate in what is called 'the playground' at the institute, where they can play with making all kinds of experiments (Hasse, 2000, p. 239).

Some students, and some teachers, express irritation if the play

becomes so noisy it disturbs the class. They apparently regard the creative acts not as creative, but as mere annoying play that often is considered an annoying distraction from what they assume to be the only task of the institution—giving the students opportunities to learn from teachers and textbooks.

What I propose is that, though acts of play can be seen as a nuisance from the point of view of some of the students being annoyed with their fellow students' playful acts, in this context play takes on a new meaning. It becomes an act of creation and innovation because it points further toward 'real' work as a physicist. Learning in this context gives the playful males an advantage over the more diligent, but less playful students.

Vygotsky suggested that play creates the ZPD in the child—as the relation between play and development can be compared to the relation between instruction and development (Vygotsky 1933/1966, cited in van der Veer & Valsiner, 1991, p. 345). As René van der Veer and Jaan Valsiner (1991) note, presumably Vygotsky was thinking of various types of play in which children imitate adults. In the case of Alexander, he is certainly not deliberately imitating other adults—but in play it can be argued he is unconsciously imitating the playfulness of a working physicist that always seeks to enhance our knowledge further than knowledge canonized in textbooks.

If we take the teacher's actual development as a point of departure, it can be analyzed within two different and contradicting activity systems. On the one hand, the teacher is placed at this educational institution to teach textbook knowledge. He is of course aware that he is placed in this activity, but his actions can be analyzed as belonging to another, much more implicitly formulated but wider activity: paving the way for new creative ways of developing physics. The aim is not to level out the difference between the ZPD of Anni and Alexander, but to enhance Alexander's creative capacity.

Anni experiences a sense of defeat because she feels excluded by the unexpected reaction on the part of the teacher. The result is not development, but quite the opposite—withdrawal and resignation. As such we might get a hunch that the notion of creativity can be tied to institutional activities—and only by a thorough analysis of the object of the activity can we be able to understand the relation between a particular action and its being considered creative. What is considered creative can be seen as relational because the individual act is connected to what is considered important in developing the main activity of the institution. The ZPD is relational as it depends on what activity the teacher you encounter regards as the leading activity of

the institute. In my analysis, answering to what I propose as the main activity of the institution—to enhance and enable student's creative capacity for research—already playful students will develop further than the rest of the possibly more diligent participants.

Selma's Story

So the answer to my opening question, 'How is creativity acknowledged in institutions?', would be: it is acknowledged according to what is considered the main activity by the institutional staff who evaluate the persons' actions as part of a wider activity, making them part of a collective subject.

From this argument we should think that when institutions change, then also what is considered creative must change with them. One example of this kind of change in institutional creativity is the sad, but also beautiful, story of Selma, told by Henry Schaefer-Simmern (1961). Selma was considered on the borderline between an 'imbecile' and a 'moron' (p. 33) and had, by the time Schaefer-Simmern encountered her, been institutionalized for 16 years. She was, when enrolled in Schaefer-Simmern's training class, considered lazy and indifferent, unresponsive and phlegmatic, and had a vague empty stare. She would obey commands, but showed absolutely no independent initiatives (pp. 33–34). As the leader of an experimental drawing school for the mentally retarded, Schaefer-Simmern changed that. Selma's drawings were crude and simple at first, but Schaefer-Simmern was able to detect small changes in them that he considered acts of creativity. By encouraging Selma and praising her drawings, even though they were crude, he noticed profound changes in her whole ability to cope. In forming artistically, Selma in turn formed herself (p. 51). As noticed by the chief psychologist at the institution, the development in the realm of Selma's visual conception was concomitant with a striking change in her institutional behavior. She gradually became less isolated, took new initiatives and changed her whole attitude. The change took place only when she had been given the opportunity of participating in the experimental group (pp. 56–57). In time Selma's drawings even came to be used as models for pictures and tablecloths made together with other members of the class, who also praised Selma's work. During participation in drawing class the mentally deficient persons seemed to experience an increased group feeling unusual among the 'feeble-minded' (p. 59), and produced a number of collaborative works. The success of Schaefer-Simmern's class soon spread to other teachers, who adopted his techniques and procedures

and even started to draw themselves, just as other mentally deficient members of the institution created embroideries, printed fabrics and designs cooperatively, thereby changing the institution as a whole.

Because Schaefer-Simmern was in line with the sincere wish to change the institution, Selma could be recognized as a creative person, and could develop as such. The chief psychologist at the institution underlined that basically Selma was given an opportunity to merge in one activity emotional satisfaction, full utilization of energies, planning and foresight, and well-configured visual expression, but 'the change in Selma's behavior could also be attributed to the fact that she was receiving praise and attention' (quoted in Schaefer-Simmern, 1961, p. 57). If the decision-makers at the institution had not opened up to new kinds of recognitions of what could be considered creative, by hiring Schaefer-Simmern, Selma's ZPD might never have met with an actual institutional developmental level able to liberate her from the near-bovine position she had occupied during her institutional existence up to that time (p. 54). Selma became part of a changing collective subject, which all of a sudden made it possible to see her as a contributor to the expansion of the institution as such.

Creating a ZPD by Training

In the two very different cases, those of Selma and Alexander, Selma clearly stands out as the most obvious example of Vygotsky's theoretical thinking. In this case the ZPD has to be created by training. Again and again Schaefer-Simmern carefully instructs Selma, trains her in using colors and perspective, praises her modest efforts all the way. As the ZPD expands, Selma is able to learn more, and thereby her training can become more and more complicated. From the crude patterns she started out with, in the end she draws quite complicated patterns, trees and even animals. In this case we follow a developing process over a long period of time.

Schaefer-Simmern gradually fertilizes Selma's creative buds of painting and drawing. Not only does he enhance her ZPD, he brings it into full bloom. Her painting ends up being admired not only by Schaefer-Simmern, but also by the other mentally deficient people, as well as staff and visitors.

Schaefer-Simmern is not trying to 'implant' something in the mentally deficient woman. He is doing exactly what Vygotsky claims is necessary when he states: 'It must be trained through some external activity. Creating a ZPD thus is the result of a series of processes of internal development. Therefore what we need is correctly constructed

processes of school teaching' (Vygotsky, 1933/1935, p. 134, cited in van der Veer & Valsiner, 1991, p. 331).

Alexander has developed his creativity the same way as Selma—in both cases their development is based on training. In Alexander's case this training took place before he met with the teacher at the institution—probably with some other teacher or peer. ZPDs do not develop overnight. They develop through a series of everyday situations each added to the other. In this line of transformation, however, every episode counts.

The episode with Alexander and Anni has the character of a snapshot. In the situation the teacher is not necessary to develop Alexander's computer programming skills. He can test his skills and develop his own capacity by playing. In doing this he is creating his own ZPD for computer programming. Still the teacher's intervention includes an important contextualizing information—that his play with the grid-ball receives a positive evaluation. Evaluated from another perspective, Alexander might have been blocked in his possible self-developing play and thereby held at his existing level. At the institution for the mentally handicapped, Selma is not herself able to develop the skills for performing as a creative artist. The staff at the institution have to take an initiative to change the activity there—they hire Schaefer-Simmern as a teacher. Only then can Selma be trained and thereby gradually develop her creative potential.

Different as they are, however, the two cases have something in common. In both cases Selma and Alexander are praised by their teachers. This praise is not just encouragement telling them that they are making progress; it also communicates that the two apprentices are involved in the same activity system as their teachers. By getting praise it is possible for Alexander and Selma to develop a sense of what the teachers at the institution evaluate positively. Their acts seem congenial with the wider activity system. Their development is taking a direction that the teachers regard as an asset.

On the contrary, it can be argued that Anni's development is blocked because she receives two contradictory statements. On the one hand, she is asked to solve the textbook exercise, but, on the other, she is indirectly told that it is better not to solve it but to play instead. From her training in schools she knows solving exercises correctly yields praise from the teacher, but here this is not the case. Counter to her expectations, she receives no praise for trying to 'do it right' according to the textbook exercise.

The reaction of the teacher does not correspond to what she thought the institution was about. In order for her potential to have been

developed, her physicist teacher should have acted like Schaefer-Simmern with Selma and meticulously trained her skills in computer programming and thereby eventually given her the possibility to develop a creative ZPD in programming.

So what makes the two teachers so different? Could we not also have found a Schaefer-Simmern at the physics institute? Other episodes from the institute show that some teachers would have reacted more negatively to playing around with textbook material and would have encouraged Anni's conception of the institutional activity. In such a situation even her small progress in programming might have been met with praise, just as Schaefer-Simmern praised Selma's crude drawings and supported her every step of the way.

Small as it is, Anni and Alexander's situation illustrates that learning is not confined to textbook learning but is situated in everyday human interaction (Lave & Wenger, 1991). If we do not learn skills or textbook material, we learn something about the context we are acting in. This is also the condition for paving the way for a change. Institutions seem to be able to create conditions for the development and support of creative acts depending on whether the apprentice's ZPD is in accordance with the actual zone of development of the teachers (or administrators) of the institutions. As institutions are very complex settings, they might comprise different activities, which manifest themselves as different teachers' evaluations of students. In this process change is connected to power.

Power and Frustration

Engeström has proposed that not only individuals, but also what can be analyzed as such collective systems of activity have expansive cycles that are equivalent to past, present and future ZPDs (Engeström, 1987, 1999, p. 34). In this process the new is created. In this reformulation of the ZPD the distance between the present everyday actions of individuals and the historically new form of the societal activity can be collectively generated as a solution to the double bind potentially embedded in everyday actions (Engeström, 1987, p. 174). This places ZPDs within an institutional framework.

Institutions are not regarded as determining or determined in Engeström's theory. The social actors act within a politico-economic structural framework. There is interplay between subject, object, instruments, and the rules and the division of labor in the surrounding community—and even adjacent activity systems (Engeström, 1990). Overall in the system there is the possibility of acting in

powerful new ways based on interests and reactions to 'double-bind' situations. What gives meaning in general are how these complex relations taken as a whole change the object of the institutional activity. An institutional problem must therefore be seen as a potential ZPD for the activity system as a whole—and not the problem of each individual (Engeström, 1987). Expressed frustration with the institutional activity might lead to creative new solutions when the problem is explicitly formulated. Creative new solutions might expand the activity as such. The approach dissolves the separation between studying sociocultural structures and studying individual behavior and human agency (Engeström, 1999).

The anthropologist Edwin Ardener goes further when he claims that the social is, by virtue of its categorizing and classifying structures, a space that 'identifies'. As human beings, we are identified by the space and are nevertheless the defining consciousness of the space (Ardener, 1989, p. 212). From these two perspectives it becomes clear that activity systems are made up by the people meeting and interacting in institutions.⁵

Human beings by way of definitions create what can be seen as structured and systemic ZPDs for institutions defined by and defining individuals. It is by defining and identifying rules, divisions of labor and who belongs to the community that the institutional ZPDs are created. Often the persons responsible for defining and developing higher educational institutions are the decision-making members of the staff. Though some staff members might have other conceptions of the activity, neither they nor the powerless apprentices are able to select and define the main activity that contextualizes evaluations of actions.

The problem I point to here is the fact that members involved in what seemingly might be the same actions—e.g. solving physics exercises in a physics class—might understand the situations within the framework of different activities—and what is regarded as creative solutions might also be seen as such from within the particular activity. The power to define the main activities of institutions—and thereby what are to be considered creative acts—is unequally distributed.

In a situation like the grid-ball episode it is clear that the division of labor also is a division of power. Alexander and Anni do not possess the same power to define and contextualize the situation as the person positioned as a teacher. Different reflections over what Bateson would consider the 'same' situations can lead to frustration and subtle power relations between the participants in institutional life. Like Alexander, some have already learned what are considered important skills and congenial interpretations in the context as the powerful institutional

members define it. Others, however, have not yet fully internalized the collective object of the activity and stand back confused. These frustrations are enhanced because they can note that other members of the institutional life seemingly have a better (i.e. more congenial relationship with the members in power) understanding of the situations than they do.

Not every interpretation goes—even though members can fight to make their interpretation replace the ruling one. Anni could have challenged her teacher by pointing out that she needed teaching to learn to solve the exercise, but it would not be an easy thing to do because she has no clear idea of what goes on. And it seems almost impossible that Selma all by herself could challenge the system that kept her dumb and unappreciated for so many years.

When leading members of institutions change and open up to new approaches, even persons who beforehand were considered ignorant and dumb can be recognized as creative. What would it take for Anni to be considered creative? Well, from the perspective of the relational ZPDs, this could be accomplished in four ways—but fundamentally concerning change in either Anni or the institutional activities:

1. Anni could seek training from other teachers and thereby change her capacity for playing with grid-balls.
2. Anni could express her frustration in such a way that the activity of education became the main object in the situation. In that case the teacher would start to train her properly, like Selma, in the skills in demand at the institution so that she could start creatively developing her own ZPD aided by the teacher.
3. As in the institution for the mentally handicapped, the powerful members of the staff could decide that the education of students who lag behind is to be the main activity. Or they could decide to ban computers and place weight on some other skills that Anni might possess beforehand (like drawing, which Alexander is unable to do). In that case she automatically would surpass Alexander, as the activity would shift the institutional actual zone of development.
4. Finally it might take the initiative of an outsider to make change possible, as with Schaefer-Simmern.

The Historical Change of the ZPD

I have discussed creativity as a dynamic system, rather than ‘the image of the lonely creative genius that has been part of the Western mind-scape for generations’ (John-Steiner, 1997, p. xv), which has centered

the study of creativity on tests designed to identify traits, abilities and thinking styles of creative persons. This discussion has not intended to block out the importance of individual creativity aided by diverse cultural tools, nor to deny the existence of extraordinary human beings such as Albert Einstein, Vincent van Gogh, Galileo Galilei or William Blake. The discussion taken here is only meant to enhance awareness that to be *considered* creative, creative persons have to be recognized as such from the social environment. The next question is: is this recognition also one of the conditions for developing creative abilities? In the following argument I shall suggest it is likely to be so.

Those whom we regard as extraordinarily gifted and creative persons change over time. As the social environment changes, persons who were considered mad or unimportant by their contemporaries turn out, many hundred years after their deaths, to have been extraordinary thinkers.

In the sciences as well as the arts, the ability to add new knowledge to one's field requires the full internalization of the *meaning* of the achievements of the past. In establishing collaborative endeavors across generations, the mentor and the apprentice teach each other the value of interpretation and synthesis (John-Steiner, 1997, p. 201). Often these mentors will already be attached to institutions (as workshops, the Royal Academy of Arts or universities) when the apprentices arrive. This goes for creative artists as well as scientific thinkers. But in the cases of Galileo and Blake, we seem to have an opposite situation. Neither Galilei nor Blake seems to have been able to find shelter within institutions tied to his particular creative abilities. It seems as if their actual zone of development was the proximal zone of development for the institutions around them. The meaning of their achievements has appeared gradually a long time after their deaths.

In the case of Galileo, his discovery of the satellites of Jupiter by his improvement of the telescope led to his conviction that the Ptolemaic system placing an immobile Earth at the center of the Universe was wrong. Far from this being regarded as a creative discovery, he was persecuted by the Church. When he died in 1642, all the Christian institutions then in power had for many years exiled him. Today he is regarded not only as one of the first human beings to acknowledge and prove the thinking of Nicolas Copernicus, but also as the inventor of refined thermoscopes and telescopes, and as the founding father of experimental physics.

The sad case of what is recognized as the genius of William Blake (1757–1827) seems even more pitiful. Educated as an artist, he was never recognized as either a great painter or a great poet—though

today his visionary poems are regarded among the finest literary treasures in English, a whole section of Tate Britain in London is devoted to his artworks, and a major Blake exhibition was staged at the gallery in the winter of 2000–1. In his time, however, Blake barely survived as an engraver, wearing threadbare clothes and ‘trousers with a black and shiny front, like a mechanic’, as one of his contemporaries described him (quoted in Ackroyd, 1995, p. 356). He seemed to regard himself as an unrecognized genius, expelled from ‘good company’ by his inability to make pleasant conversation. As a result he never became a member of any sect or club (Ackroyd, 1995, p. 87).

Blake and Galileo developed creatively outside of the established institutions of their time, apparently with no help from any mentors. In that sense they might be regarded as true geniuses. If they were not enrolled in any institutional settings that could nourish their creative development, however, they were not completely isolated human beings. Galileo had from his childhood the powerful institution of the Medici family in Florence as patrons—a family so powerful that they could actually oppose the Church and protect him. Here his further thinking on the thoughts of Copernicus and work on telescopes was met with praise and wonder. Though the Medicis were not interested in science as such, they certainly looked upon Galileo as a creative inventor. The historian Mario Biagioli argues, though, that Galileo’s scientific arguments were only accepted at the Medici court because they were regarded as creations of entertainment, and because Galileo spoke in an eloquent courtly manner: ‘not only is the telescope a marvel to the courtiers but Galileo’s argument was not pedantic but cool’ (Biagioli, 1995, p. 78).

This was not the case with Blake, who more or less remained unsupported by any noble families his whole life and who was regarded by most people as a rather cantankerous person. Blake sought the inspiration for developing his visionary thought in, among other things, the writings of Emmanuel Swedenborg and the Bible. He had a very small but loyal group of admirers. Most of all he received personal support and admiration for his creative thoughts not within a large institution, but through his marriage to Catherine Boucher. Blake’s biographer Peter Ackroyd (1995) describes this marriage as ‘a story of utmost devotion without parallel in the history of English letters, and it can fairly be said that without Catherine Blake none of the great works of her husband would have appeared’ (pp. 306–307).

The two geniuses had developmental zones far ahead of their times. Though they were suppressed by institutions filled with contemporaries with no intention of enhancing their own actual zones of

development by listening to the artist and the scientist, their closest social environment supported their development.

All of the creative persons mentioned share this recognition of their creations in their closest social surroundings—though some are based in an institutional setting and others not. As pointed out by Vera John-Steiner, famous artists and scientists frequently describe the motivational ambience created by their family, and for the creative individuals interviewed at the peak of their career the role of an interested adult or mentor seems important (John-Steiner, 1997, pp. 34, 199). The encouragement that they receive from caring adults is, John-Steiner concludes, an important part of the development of their sense of self, for an inner belief in one's self is a necessary strength in the pursuit of a creative life (p. 199).

As a final example of a relational ZPD, we might take the fate of Lev Vygotsky himself. This might enhance the argument from being that of an internal relation as well as an external relation between an actual and a proximal zone of development to the meeting between two congenial zones of proximal development melting together in a historical transformation of an institution.

The mental-historical outline of Vygotsky's own creative development has been traced in van der Veer and Valsiner's *Understanding Vygotsky: A Quest for Synthesis* (1991). Here we learn that Vygotsky was brought to the Institute of Experimental Psychology at Moscow University because there was a remarkable convergence of developmental lines in thinking about new roads for psychology developed by the extraordinary schoolteacher from the provincial town of Gomel and the ideas held by the new director of the Institute, Konstantin Kornilov (van der Veer & Valsiner, 1991, p. 132). Kornilov, at that time the man of the new Marxist reign, had replaced Chelpanov, who headed the Institute until 1923, when he was accused of being an 'idealist' (van der Veer & Valsiner, 1991, p. 43). It almost seems as if Vygotsky and Kornilov to some degree, at least in the beginning of Kornilov's reign at the Institute, share the same ZPD for thinking about the future of psychology in the new Marxist Soviet Union, or at least are able to act as facilitators for developing each other's creative thinking. Later this changed as Vygotsky and Kornilov developed in different directions, though both in time were accused of non-Marxist activity.

Conclusion

The ZPD of creative acts can be argued to be relational because, within the institutional system, it can be seen as connected to praise—and

what is praised is different depending on what activity the powerful members of the staff are involved in. In extreme cases this might mean that creative potential in some individuals is suppressed because the staff members' actual zone of development does not correspond to the other participants' potential. Somehow the sharing of ideas—connecting of thoughts—needs a meeting between zones of development that can be connected. Creative acts, apart from being something that takes place inside the individual, are relational in the sense that certain acts have to be recognized as creative, and that this recognition can be analyzed as connected to activity systems. If we are not in accordance with the main objective of the institution, the result can be a feeling of withdrawal and failure, as in Anni's case.

Maybe Anni has hidden talents for doing physics in new ways—like Selma gradually showed a, until then, hidden talent for drawing. It is difficult to know what it would take to bring this forth, but I have argued that recognition of creativity can become a ZPD in accordance with the (new) institutional object of activity, so that both the institution and the individual can develop in new ways. Whether the institution deals with higher education or the mentally handicapped when it is opening up to a new recognition of creativity, both the institution and the individual can expand their capacity.

Notes

1. The same problematic has been discussed by Peg Griffin and Michael Cole, who note that from the point of view of the individual learner, the teacher does not always provide support for the student's progress (Griffin & Cole, 1984, p. 62).
2. All names are pseudonyms.
3. The development of double-bind frustrations evolves and becomes deeper over time where persons are chronically subjected to invalidation through paradoxical interaction (Engeström, 1987, p. 143).
4. It is worth noting that Vygotsky was *not* a stimulus–response theorist, but interested in how the individual actively modifies the stimulus as part of the process of responding (Cole & Scribner, 1978, pp. 13–14).
5. As a unit of analysis, activity systems need not be institutions, however.

References

- Ackroyd, P. (1995). *Blake: A biography*. New York: Ballantine.
- Ardener, E. (1989). *The voice of prophecy*. Oxford: Blackwell.
- Bateson, G. (1989). *Steps to an ecology of mind*. New York: Ballantine. (Original work published 1972)
- Biagioli, M. (1995). Tacit knowledge, courtliness and the scientist's body. In S.L. Foster (Ed.), *Choreographing history*. Bloomington: Indiana University Press.

- Cole, M., & Engeström, Y. (1993). A cultural-historical approach to distributed cognition. In G. Salomon (Ed.), *Distributed cognitions: Psychological and educational considerations*. Cambridge: Cambridge University Press.
- Cole, M., & Scribner, S. (1978). Introduction. In L.S. Vygotsky, *Mind in society: The development of higher psychological processes* (M. Cole, V. John-Steiner, S. Scribner, & E. Souberman, Eds.). Cambridge, MA: Harvard University Press.
- Engeström, Y. (1987). *Learning by expanding: An activity-theoretical approach to developmental research*. Jyväskylä: Painettu Gummerus Oy'n kirjainossa.
- Engeström, Y. (1990). Theater as a model system for learning to create. In *Learning, working, imagining: Twelve studies in activity theory*. Helsinki: Orieta-Konsultit Oy.
- Engeström, Y. (1993). Work as a testbench of activity theory. In S. Chaiklin & J. Lave (Eds.), *Understanding practice: Perspectives on activity and context*. Cambridge: Cambridge University Press.
- Engeström, Y. (1999). Activity theory and individual and social transformations. In Y. Engeström, R. Miettinen, & R.-L. Punamäki (Eds.), *Perspectives on activity theory*. Cambridge: Cambridge University Press.
- Engeström, Y., Miettinen, R., & Punamäki, R.-L. (Eds.). (1999). *Perspectives on activity theory*. Cambridge: Cambridge University Press.
- Gardner, H. (1994). *Creating minds: An anatomy of creativity seen through the lives of Freud, Einstein, Picasso, Stravinsky, Eliot, Graham, and Gandhi*. New York: Basic Books.
- Ghiselin, B. (Ed.). (1985). *The creative process: Reflections on the invention of arts and sciences*. Berkeley: University of California Press. (Original work published 1952)
- Griffin, P., & Cole, M. (1984) Current activity for the future: The Zo-ped. In B. Rogoff & J.V. Wertsch (Eds.), *Children's learning in the zone of proximal development* (pp. 45–64). San Francisco: Jossey-Bass.
- Hasse, C. (2000). *Kraftfellet—kulturelle lærprocesser i det fysiske rum*. PhD dissertation, University of Copenhagen.
- Hastrup, K. (1995). *A passage to anthropology: Between experience and theory*. London: Routledge.
- John-Steiner, V. (1997). *Notebooks of the mind: Explorations of thinking* (rev. ed.). Oxford: Oxford University Press.
- Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge: Cambridge University Press.
- Leontiev, A.N. (1981). *Problems of the development of mind*. Moscow: Progress.
- Merriam-Webster's Collegiate Dictionary* (10th ed.). (1995). Springfield, MA: Merriam-Webster.
- Schaefer-Simmern, H. (1961). *The unfolding of artistic activity: Its basis, processes and implications*. Berkeley: University of California Press.
- Scribner, S. (1985). Vygotsky's uses of history. In J. Wertsch (Ed.), *Culture, communication and cognition: Vygotskian perspectives*. Cambridge: Cambridge University Press.
- van der Veer, R., & Valsiner, J. (1991). *Understanding Vygotsky: A quest for synthesis*. Oxford: Blackwell.
- Vygotsky, L.S. (1935). O pedologicheskom analize pedagogicheskogo processa.

- In *Umstvennoe razvitie detej v processe obuchenija*. Moscow / Leningrad: Uchpedgiz. (Original work published 1933)
- Vygotsky, L.S. (1966). Igra i ee rol' v psikhicheskom razvitii rebenka. *Vosprosy Psikhologii*, 62–76. (Original work published 1933)
- Vygotsky, L.S. (1978). *Mind in society: The development of higher psychological processes* (M. Cole, V. John-Steiner, S. Scribner, & E. Souberman, Eds.). Cambridge, MA: Harvard University Press.

Biography

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