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Narrative Learning in the Fifth Dimension

Summary

The article describes an extension of the original idea of the fifth dimension model to pre-school age. We found out that small schildren are not able to use in their activity the tasks formulated by the adults. Learning tasks inbedded in different narratives were used in 5D environments. Experimental research led to a hypothesis on the status of narrative learning as "transitory activity system" between play and school learning. The hypothesis is presented and a transitory model sketched. Examples on children's sense making and narrative learning in problem situations are offered at the end of the article.

1. The 5thD approach to learning

The fifth dimension approach to learning has a long history in Michael Cole's research on cognitive consequences of schooling. He was interested in the problem: Can cognitive differences take place in everyday settings that are not controlled by a researcher or a teacher? The problem was studied by comparing the ways in which children solve cognitive tasks in different settings: psychological tests, schoolrooms and after school activities. The next step was to move elements of school learning to the "Field College" and after school clubs, which were designed to be fun. The "Field College" included a specially constructed computer-mediated activity called the Fifth Dimension (Cole 1996).

The 5thD research project was started in 1986. The activity was studied at the level of institutional sustainability as well as at the level of micro-genesis of development. The goal was to be able to say something about the interconnections between development at the micro-genetic, ontogenetic, and cultural-historical levels. Designing the 5thD computer mediated activities had the following goals:

1. To design an activity that children want to take part in.
2. To create an activity rich in opportunities for written and oral communication about the goals and strategies used in problem solving.
3. To create a set of activities with a lot of variety.
4. To attract girls as well as boys in telecommunication.
5. To avoid a situation where access to particular games became a way of bribing children to do what adults wanted (Cole 1996, 290).

The first versions of the 5D environments were organized for children who had lost their learn-

ing motivation in the classroom setting. The motivation of playing games was used for educational purposes. Meaningful and fun activity had a hidden agenda for improving the basic skills in which school had failed. In order to emphasize the difference between school and the 5D environment after school activities were arranged in clubs (Cole 1996).

Activity in the5D environment has a different structure compared to school. Children engage in playing computer and board games, drawing, reading stories, interacting with other children using telecommunication. Separate activities are connected to each other by a make-believe world using a metaphor of a journey in the maze. Curricular content is embedded in games and other activities. Subject matter may include communication skills, maths, social studies, health, science, technology, and the arts, with an emphasis on problem solving. Children participate in the activities individually and in groups. Their initiative and participation in the peer community is an important element of activity.

The authority position of adults is eliminated by different solutions in 5D environments. Participation in the 5D activities is free and depends on children's individual goals. They must decide where to start their journey in the maze, how to proceed from one activity to the other and with whom they play. The journey is metaphorical and composed of games and tasks. Tasks connected with the games in the maze are presented by adults, but are part of the play-world. The traditional question – answer scheme of communication between teacher and children (Mehan 1979) is radically changed in the 5D environment. Children are encouraged to set their own goals, develop their own strategies, and make their own decisions.

A central factor having the potential of eliminating the authority position of adults is the Wizard. Persons helping the children in the 5D activities are the Wizard's helpers. The Wizard is the creator and custodian of the fifth dimension, but no one has seen him. The Wizard communicates with the children by e-mail and the children write him to tell how they accomplished their tasks. According to the original model the Wizard makes final decisions and the persons present in the 5D site are mediators between the Wizard and the children. In the 5D environment power relations between adults and children can be radically changed compared to traditional classrooms.

Different elements in the 5D environment create a special atmosphere for learning. Narrative content is present in the games, in the frame story of the Wizard and the imaginary journey made in the maze (Nicolopoulou and Cole 1993). But the narrative setting includes the challenge of solving realistic problems connected with language, maths and other school subjects. This unusual combination of narratives and problem solving makes a difference compared to school lessons.

The learning environment created in the 5D sites differs in many aspects from the traditional school environment. The following traits of learning environments are essential:

The developmental and learning potential of the 5D approach depends on how the technical environment is transformed into psychological and cultural tools of development (children's community and culture, peer learning and tutoring, integration of affective and cognitive aspects of learning). The main focus of the fifth dimension network in the USA is on problem solving and development of the community of learners at the age of 6-14.

Many aspects of the fifth dimension are essential in meaningful learning and positive learning results are demonstrated. But there seems to be less analyses focused on the specific role and function of narratives in learning in the fifth dimension. This article aims at analyzing the possibilities of narratives in learning and their developmental potential.

Settings	Object of learning	Learning community	Type of interaction	Power relations	Basis of didactics
5d environment	Defined by children	Peer community, intergenerational community	Guided participation in local culture/site	Adults as mediators, make-believe authority	Meaningful activities, sense creation
Traditional school environment	Defined by teacher, curriculum, textbooks	School class of individual pupils	Instructional interaction led by teacher	Teacher as authority	Adult explanation, linear model

Table 1 Differences of learning environments at school and in the fifth dimension

2. Learning in play and through fairytales

The basic model of the fifth dimension combines problem solving with make–believe. The role of make-believe is supportive. Imaginative elements are not sources of learning, but help in creating motivation and interest for solving problems presented as a set of tasks. Tasks are closely connected with the games and other 5D activities. There is a clear difference between traditional school tasks and tasks in the 5D environment, but tasks are organizational units for learning in both settings. Other types of cultural learning are encouraged by sheer participation in the site's activities.

Narratives and make-believe work in a different way in the 5D environment for kindergarten children and for teenagers. We can assume that the narrative content is more essential as a direct source of learning for younger children and the tasks are not as effective organizers of learning for preschoolers as for older children. The problem is that we cannot evaluate the impact of narrative learning by using the same criteria we use for school learning. Learning in play differs from learning in problem solving. In order to develop narrative learning in the 5D environment we should analyze the specific nature and developmental potential of learning in play and other narratives e.g. stories, dance etc. (Hakkarainen 2002).

Make-believe and play are often understood as a method of effective early education (e.g. Kieff & Casbergue 2000). Main criteria for evaluating the results of playful learning and teaching are mastery of the social and physical environment, technical skills, elementary knowledge, concepts and thinking skills rather than creative imagination, sense creation, free exploration of ideas, phenomena and their relations, emotional identification and motivation. We have reason to think that the meaning and developmental potential of play and make-believe is not at all understood if concrete skills and the immediate mastery of reality are the criteria of evaluation (Sutton-Smith 1995).

One of the difficulties in understanding learning in play lies in the fact that play does not have explicit goals or material results. The play process itself is important. The other problem is the difference between the subject of play and school learning. The individual learner is the subject of school learning and learning results are measured as individual mastery of skills. Play has another dimension of subjectivity, which makes it difficult to find out what the individual's learning process is.

Gadamer (1975, 93) described this aspect of play: "The movement which is play has no goal which brings it to an end; rather it renews itself in constant repetition… The actual subject of play is obviously not the subjectivity of an individual who among other activities also plays, but instead the play itself".

The object of learning is mediated sense creation in play. When children construct role relations they are not training social skills of the adult world purposefully. If a child plays with a car he has no intention of moving concretely from one place to another, but he is experimenting with the idea, sense and motives of driving carried out in symbolic actions in an imaginary situation. We can suppose that instead of real changes play aims at need states and motives. Fein (1987) argues that a child rather imitates need states than presents real needs (e.g. pretending sleeping in play does not mean that a child is tired and wants to go to sleep).

Learning through narratives, play and make-believe have quite a different character and developmental potential compared to problem solving in task situations. From the point of view of learning, e.g. pretend play, seems to be a strange learning situation. The paradoxical aspect of learning in play is formulated by Donaldson: "…why should children begin the apparently pointless activity of treating things as what they are not." (Donaldson 1992, 69). She refers to three facts in children's pretending: 1) physically present objects are made to stand for or serve as others, 2) attribution to objects of properties which they do not in fact possess, and 3) the use in play of totally imaginary things when in reality there is only empty space. We can better understand this paradox by introducing the concept of sense [smysl][1] and explain children's play actions as objectification of sense.

Learning is not simply acquisition of the facts of the surrounding environment. Donaldson defines the function of pretend play by describing a new evolving mode of the mind "construct mode", which has to be supplied by a deliberate constructive act of imagination. The core of the construct mode is described as follows: "Instead of here/now or there/then mind will next begin to concern itself with a locus conceived as somewhere/sometime or anywhere/anytime. Thus in the third mode we are no longer restricted to a consideration of episodes in our own experience – or even those we heard about from others. We start to be actively and consciously concerned about the general nature of things." (Donaldson 1992, 80).

The same aspects of learning are promoted by fairytales as by pretend play. El'koninova describes the psychological nature of classical fairytales as follows: "What the fairy tale prescribes in full aesthetic form are models of motives of moral behaviour rather than models or specific ways to realize those motives, i.e., how to apply or measure up to them. The unselfish desire of the main character in a fairy tale to rectify a misfortune that has befallen others or himself is realized not so much by the main character, but by the magical forces. The main character is rather passive in pursuing the aspiration to accomplish an altruistic deed; but he is active in one thing: he wants to help the victim of the misfortune; he resolves to offer his assistance, and he assumes responsibility for the actions entailed by his acceptance to accomplish such a mission. The main character in a fairy tale himself takes the decision to act nobly." (El'koninova 1999, 183).

The secret of the charm of classical fairytales is in the emotional identification with the main character of a story: "A model of the initiative behaviour (sense of an action)

1 The difference between two psychological basic concepts in Russian "znacenie"[meaning] and "smysl"[sense, significance] has been ignored in many translations of Vygotsky's texts. The essence of his play theory is based on this difference.

is singled out by the child not through mental inferences and the operations of thought, but through a direct emotional relation to the main character, through participation in the events in the story. In assisting the hero, a child wants to do together with the main character what an ideal, fairy tale world expects from the main character, and experiences with him all the trials he must undergo to prove his intentions. But to acquire the 'experience' of this sense creating behaviour, the child must participate in a story's events from beginning to end and stay immersed in the make-believe world through all the events in the story." (El'koninova 1999, 187).

Make-believe used in the fifth dimension may not aim at probing the sense of an action and emotional identification with the make-believe characters (The Wizard, characters of games) as fairytales do. A fairytale constructs the boundary in a specific way: "The world of a story is divided into two semantically opposite, nonintersecting spaces. The two spaces are separated from one another by a clear dividing line in the form of a river, field, fence, or hearth. The boundary between the spaces always belongs to only one of the spaces, not both at the same time: for example the door of a house belongs to inner space. The characters living in this space cannot change their surroundings. Only the main character can cross the boundary between the spaces and move from one to another." (Propp 2000, 194.).

3. Transitory activity in the 5D environment

It is possible to describe the 5D environment as a specific activity system or children's subculture. There are, however, some developmental needs or goals behind decisions to organize a 5D site. From the developmental point of view the potential of the 5D environment is different at different ages. We can suppose that the developmental potential of 5D is greatest at some critical stages, when qualitative changes in psychological structures and dynamics take place.

El'konin (1971, 1999) proposed a stage model of psychological development based on the idea of two qualitatively different types of stages: 1) fluently proceeding stages during which changes are gradual, 2) critical stages ("psychological crisis") during which qualitative changes take place, and children have difficulties with adults as a symptom of the need for new challenges and new relations. Symptoms of a crisis vary a lot between individual children. Crises can be seen first of all in children's relations to the environment.

Vygotsky proposed the idea that the basis and sources of development change during crises. Those factors that were important forces of development lose their meaning and potential and other factors take their place. He wrote: "Forces moving development forward at a certain age lead to unavoidable negation and destruction of the basis of development and eliminate the social situation of development thus ending a period and starting a new stage." (Vygotsky 1983, 3, 260).

Symptoms of the presence of an individual crisis are relative. Separate traits of behaviour do not reveal the crisis. Perhaps the most visible symptom is the change in regard to what the child was before as a person. Conflicts and problems are external as well as internal. The child loses his earlier interests and his earlier mastery does not have the earlier meaning. Developmental crises are first of all motivational and closely connected to personality development.

We can presume that a crisis stage has exploratory character. Participation in a well-mastered activity is not interesting any more, but a new interesting activity is not yet found and mastered. The description of crisis stages contradicts the stage model proposed by El'konin (1971) based on the idea of leading activity. During a crisis a leading activity type

is not possible as he proposes. We can call activity during a crisis stage transitory or exploratory activity, which is a conglomerate of several activities. None of these activities has a dominant status as a source of development. We propose in the following a stage model describing transition from play to learning activity through transitory activity. We suppose that the 5D environment is ideal for constructing a transitory stage between play and learning.

The focal point in this stage model is the transition from one leading activity type to another. For us the transition into play and from play to learning in terms of qualitative changes is a central problem. Vygotsky emphasized the change in the sense structure of consciousness in transitions from one stage of development to another and admitted his mistake when focusing on the change of separate psychological functions. The change of sense structure is launched by the change of the level of generalization. In order to create the zone of proximal development between developmental stages a new level of generalization is required.

Representatives of the cultural-historical activity theory explained developmental transitions in general terms without direct empirical evidence.

The Vygotskian tradition looks for cultural factors and a general need for play in childhood. In this approach the need for play is first of all explained by the basic contradiction between children's limited skills in the mastery of reality and adults' activities, motives and objects in the surrounding context. The contradiction is solved by such mediating means as imagined situations, symbolic actions, scripts, roles and rules (Hakkarainen 1999).

Explaining the origin of play in general terms does not explicate how and why the transition from one activity type to another takes place. An attempt in the Vygotskian tradition to explain developmental transitions at the level of activity types was made by Davydov. He explained the transition from play to learning activity in the following way: "Developed imagination and symbolic functions gradually begin to lack comprehensive and wide contents, the use of which could provide the child with a possibility to use the hidden potentials of these abilities. But play in itself cannot offer such contents to the child. Inside play activity there appear inner contradictions between actual contents, limited relations to adults and contents which could better reveal imagination and symbolism developed by the child." (Davydov 1996, 112).

The problem with this description of transition is that it shows the psychological dynamics and contradictions of change, but not how the transition itself evolves. In the Scandinavian research tradition there are arguments explicating that the transition from play to learning activity should take place through an intermediate transitory activity system. Pramling (1994) proposed a new "developmental education" based on the development of children's reflection on their own learning and thinking which should build a transitory activity system between play and school learning. The transitory activity system proposed by Broström (1996) is "frame play" and it is an enriched play that combines instructional elements and play.

Our proposal for transitory activity is "narrative learning" which prepares children for learning activity proper. As a transitory activity system it combines play and learning in a specific way in which learning is embedded in the play frame, and activity is focused on the sense creation of learning. Narrative learning is based on psychological products of developed role play, but learning takes place in a space between imagined and real situations. Exploration of the boundary between make-believe and real life is essential. Narrative learning combines in a flexible way the narrative frame of children's activity with complicated problem solving. An advanced educational technology for constructing narrative learning

processes is behind the idea of "play worlds" developed by Lindqvist (1995).

A play world is based on the aesthetics of play proposed by Vygotsky, which combines a child's holistic emotional experience and aesthetic relation to reality. A thematic play world lasting several months is constructed by adults and children together using stories, folk tales, music, lights, dramatizations, visual aesthetics, pretending, role figures (presented by adults), scenery settings etc. Themes are selected by picking out some central themes from folk tales or stories, which are important in children's general psychological development (e.g. fears, acceptance of differences, lying etc.). The basic problem connected with each theme is handled from different points of view during successive sessions of joint activities in a play world.

The problems connected with themes of play worlds are not ordinary well-defined problems. They are focused on the exploration of sense. Play worlds present problems as riddles of sense and meaning, which presuppose creative solutions. Vygotsky analyzed the problem of sense in folk tales as follows: "An artistic text has always two levels. The first level is visible story line and the other one is cultural sense, which is the hidden contents of the text. For example in the fable "The grasshopper and the ant" the wise and diligent ant is compared with the grasshopper that played the whole summer without worries. The point of the story is the contrast between present misery and earlier merrymaking. This is culminated in the ant's words: "You sang and played the whole summer. This is the result. Just keep on dancing now!" According to Vygotsky the suggestion "dance now" has two meanings: the direct one "have fun" and the hidden one "dance and freeze to death" (Vygotsky 1987,121).

We are focusing on narrative learning as a social and cultural phenomenon on the collective activity level. Each activity system has parallel collective and individual levels as Engeström (1987) shows in his basic activity model. We can suppose that primary developmental transitions take place in activity systems and individual transitions depend on the individual child's participation. Adults organize play world activities, but adults' participation should follow the aesthetic logic of play activity.

We can describe narrative learning by using the basic model of an activity system in the following way (see *Figure 1*).

The object of narrative learning is the tension between meaning and sense of the cultural phenomena focused on by the community. The object of narrative learning is not factual contents met in the narrative material or problem solving in the traditional sense. Cultural meanings, which in the narrative environment are intertwined with the story lines, are essential. Problems met in a narrative environment are not well-defined. Problems have several levels and can be interpreted in different ways. One of the typical challenges of narrative learning is the interpretation of the problem.

The tension between meaning and sense as the object of narrative learning presupposes specific tools of activity, which at least partly are products of pretend role play. The central tool is the mastery of symbolism in stories and thinking. This is connected with the breakthrough of an "emotional self" and emotional identification with the narrative heroes. This is why children's narrative problem solving is not identical with the realistic problem solving mastered by adults. Problems are not outside "in reality" as adults conceive them, but children are "inside the problems" due to imagination and emotional identification. Children live through the problems, and the sense of problem solving differs from adult problem solving and it opens up a possibility for creative experimentation.

At the stage of pretend play there are successive transitions from play to negotiations on pretending and back to play. We can sup-

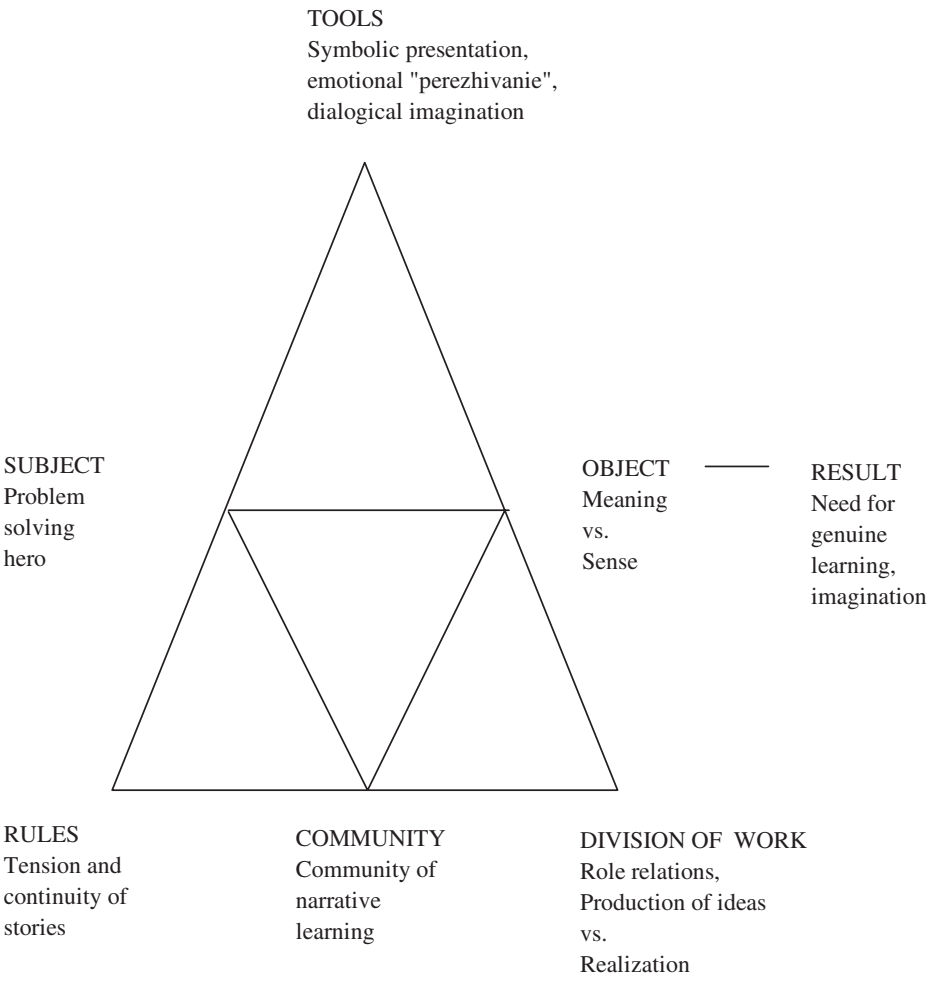

Figure 1 The transitory activity system of narrative learning

pose that similar transitions take place in a narrative environment, and narrative problem solving is confronted with "reality testing". Solving a problem on a narrative level creates a new problem: can this problem be solved in this way in reality? The solution makes sense in a narrative environment, but does it have a general meaning? This problem can be solved with dialogical tools.

Dialogue is also needed in revealing the sense of narratives, because every story includes something more than just the evolving story line. How does a child bring together the sense 'shown' to him in the story and his own real behaviour? A child tests the sense of an action in play. Such testing of the sense of a story is possible as a child play-acts the plot of the story in so far as the actions of the main character are addressed to the figure, which is the recipient of these actions. As a result several interpretations are possible. Comparison of individual interpretations and experimentation with sense are necessary for understanding. A typical

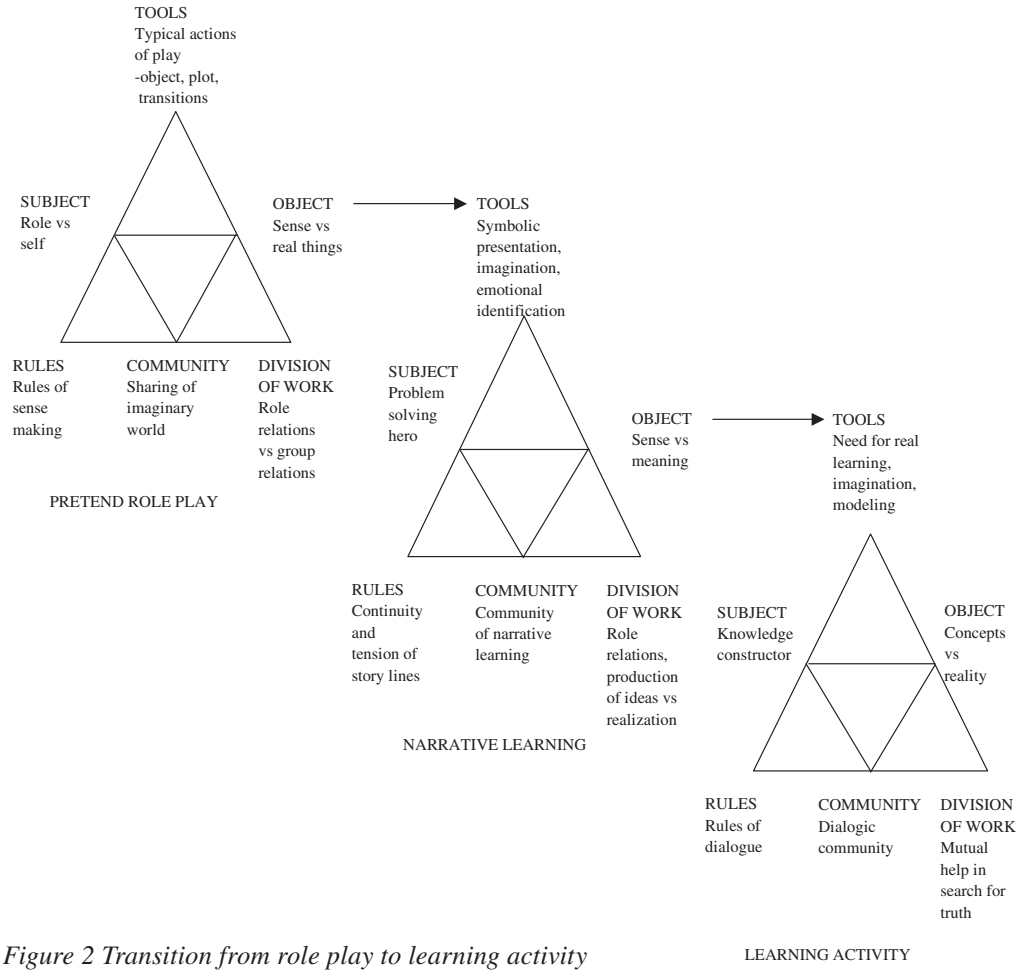

Figure 2 Transition from role play to learning activity

form of training with interpretations is play with rules and games, which require discussions on the rules and continuous checking of the said rules.

The subject of narrative learning is a problem-solving hero. As a result of emotional identification the children adopt the role of heroes and attack problems in the role as well as in their every day position. The use of roles is not always visible in role actions, the level of imagination is sufficient.

Narrative learning is carried out in narrative learning communities. In "play worlds" the community is constructed jointly in each theme by adults and children. All children are not present at the same time in all the gatherings e.g. reading happens daily in small groups. The community and its learning process is not a phenomenon starting at a certain point and leading to learning outcomes defined in advance. The learning of the community is an open process in which individuals take part in a different way.

The division of work in a narrative learning community has two levels: one between adults and children, the other between individual children. The adults are responsible for the continuity of a theme and for bringing new material

into the themes during successive sessions. Adults are responsible for planning, but they have to obey the aesthetic form of play in contacts with the children. The adults have to raise problems on the plots of stories and themes at the level of children's role relations.

We can suppose that narrative learning and problem solving is connected with preceding pretend role play and the transition to school learning or the learning activity proper. As a transitional activity system narrative learning is not pure role play, but it is not yet systematic school learning either. The following model describes the developmental transition on the level of activity systems from play to learning through a transitory activity of the narrative learning community (See *Figure 2*).

The model is an attempt to describe the reorganization of children's activity system in three successive phases. Each activity system is a description of the social situation of development and the three successive activity systems describe the general developmental trajectory on the collective cultural level rather than individual transition from play to learning. Following Vygotsky's general law of development the quality of participation of each individual child in the successive activity systems defines the individual features of transition from play to learning.

The developmental trajectory of the described activity systems extends over several years. The most definite structural differences exist between play activity and learning activity. Transitional narrative learning activity is a mixture of preceding and succeeding systems.

The object of play activity in the first part of the model is the contradiction between sense and the perceptual world. The child is oriented in sense, and the acts are not guided by perception but by sense. In the middle triangle the object is the tension between the cultural meaning and the sense of human phenomena.

The object of learning activity in the third triangle is a contradiction between the change of phenomena and concepts. One of the basic challenges of learning activity is to reveal where concepts originate and how we can grasp and explain changing phenomena with the concepts. On the general level we can talk about theoretical knowledge (Davydov 1996). This object presupposes organization of children's learning by using the scientific research process as a model. This type of learning is different from traditional school learning, and it presupposes specific developmental teaching.

There are several parallel chains of transitions in the model. On the level of community the transition proceeds: play community – narrative learning community – learning community.

It has been a problem in developmental psychology to specify the concrete products of development at each developmental stage. One of the factors behind this difficulty is an individual analysis of development. In the model we suggest that the products of the previous activity system are tools and instruments of the next system. The first transition takes place when the relation between perceptual image and sense is transformed into tools of narrative learning. In the second transition the relation between meaning and sense is transformed into tools of the learning activity proper. The result of each activity system can be seen on two levels: 1) as tools of the new collective activity system and 2) as individual mastery of these tools by participants in the collective activity.

One essential chain of changes is composed of successive subjects in the model. This chain is important because in the end the results of the collective activity should be internalized to individual structures of consciousness. The collective subject of role play is transformed into the heroic subject of narrative learning and to the investigating subject of learning activity. The change of

consciousness is closely connected with the type of generalization: children proceed from intuitive generalizations in play to classifying or theoretical generalizations depending on the type of learning at school.

4. Problem solving in the narrative environment

Experimental work led by the Kajaani Department of Teacher Education concentrates on the problem of transitory activity in the 5D environment. There are two sites doing experimental work: Kajaani, Finland and Petrozavodsk, Russia. The work on two sites provides a possibility to compare a crisis period with a calm developmental period. Children visiting the Kajaani site are 5-8 years old and come from a local day care centre or training school. The Petrozavodsk site is visited by school children of 8-10 years of age.

The narrative 5D environment on the Kajaani site aims at developmental transitions and the creation of narrative transitory activity. This is carried out in a different setting in each of the versions. The Petrozavodsk 5D environment is closer to the basic model of 5D, but the focus is on communicative tools necessary in the personality development at this age. The 5D environment is used as an interventional approach during the latent period. Earlier experimental work shows that interventions aiming at the development of communicative skills during the crisis (11-12 years) did not succeed.

An overarching idea in constructing the transitional 5D environments has been to change systematically the relation between problem solving and the narrative framework of activities. A common denominator of all the versions is children's sense creation in the 5D activities and boundary crossing between narrative and real world problems in different settings. All versions are constructed in the same physical environment that children visited after school or during day-time activities in the day care centres.

The general problem in all the versions was how children make sense of the 5D environment and activities. Our specific focus was on how problems and tasks work in narrative environments. Our aim was to study the possibilities of solving the problem of embedded tasks: tasks divorced from a context in which children can see purpose and meaning (Donaldson 1992, 19).

The five versions constructed before the end of 2001 can be characterized as follows (See *Table 2*).

The two first versions of 5D follow the basic model developed by Michael Cole. The activities are organized by games and task cards in the environment donated by the Wizard. Games are educational games aiming at the development of basic cognitive skills. The second version was similar. The only difference was that the difficulty level of the tasks was lower, and traditional preschool tasks for training skills of school readiness were included. The three following versions did not include task cards, maze or the Wizard. The idea of a journey was part of the story of 'Captain Hook'. The adventures of this pirate captain could be continued next time, if the children solved the problem he met on the seas (e.g. he lost the map or broke the clock and compass).

The last two versions (# 4 and # 5) were story-based play situations without task cards or computers. Version 4 was based on a fairy tale by Hans Christian Andersen 'The Snow Queen' which was presented to the children in five parts. The last session was organized in the 'palace of the Snow Queen' staged in the laboratory. The fifth version was based on the stories by Tony Wolf ('Storie della bosco'), parts of which were dramatized for children. The students presented animal characters from the story.

Problems to be solved by the children in

Versions	5d Setting	Narrative Frame	Children's Initiatives
Version 1 School Children 6 – 8 Years	Games, Maze, Task Cards	The Wizard, Journey In The Maze	Construction of Own 'maze', Adventure Play In 'maze', Loss Of Interest In Tasks
Version 2 Day Care Children (A) 5 – 7 Years	Games, Preschool Tasks, Task Cards	The Wizard As Nephew Of The Troll Who Needs Helpers	Asking Help In Problem Solving From Adults
Version 3 Day Care Children (B) 5 –7 Years	Story 'captain Hook', Tasks For Helping, Computers As Tools	Story Followed By A Dilemma, Free Play, transition to Story Via Tunnel	Independent Problem solving, Free Play
Version 4 Day Care Children (B) 5 – 7 Years	Fairy Tale 'the Snow Queen' In Five Parts, Dialogues	Dramatization Free Play, Entering Via Tunnel, Staging	Denial of formal Dialogues, moral Dilemmas in Play
Version 5 Day Care Children (B) 5 – 7 Years	'Stories From The Woods' In Seven Parts, Tasks For Help	Dramatized Problem Situations, Entering Via Tunnel	Constructing Shelters For Animals

Table 2 Basic traits of the 5D environments for preschool children

each version vary, and they have different meaning and sense. Problems of the two first versions are cognitive tasks. The questions are formulated and presented in written form. The challenge for the children is to find the correct solution individually or with the peers on the screen. Success or problems were reported to the Wizard by e-mail or by drawing a picture. The problems in version 3 had a different character. They were part of the story line and not separate cognitive tasks. The challenge of the two last versions was to catch and formulate the problem. Adults dramatized the story, but did not present the problem to be solved.

On the basis of field notes and videotaped activities we can ask if it is too early to organize activities using task cards for preschool children. The children of the first version lost their interest in the tasks after a few sessions. They launched their own play of 'the maze' in the adjacent room of the site. Cognitive tasks were transformed into 'traps' situated in the constructed play 'maze'. Traps were surprises or exciting challenges picked from different sources (TV, videos, books etc.) the children knew. In most cases you got trapped when an object fell down and blocked your way or a secret door suddenly opened in the wall.

The maze play started from a suggestion by the Wizard and the presentation of big wooden building blocks to children. One of the boys was the initiator of this play after hesitation: "No one listens to my ideas". An adult encouraged him to build a maze the way

he likes. The attraction in the maze built with the blocks was traps. The adult asked if there are traps in the maze proposed by the Wizard. The child denied and started to explain the differences between the mazes (the maze on the table uniting tasks and children's play maze). At times all the children participated in the play and ignored the tasks indicated in the task cards.

The children planned the traps during the process of constructing the block maze:

Antti: Mikko, place more traps!
Mikko: I have more than ten already.
Antti: More obstacles!
Mikko: Done, already. Want to see one? If someone goes this way, this falls down and I'll push one more.
Mikko: By the way, I am the boss in this maze. Remember that!

[Kaisa walks by]
Kaisa: May I guess what these are?
Mikko: What?
Kaisa: Those traps.
Mikko: OK. Guess!
Kaisa: This is one.
Mikko: Right-o! Remember this Kaisa. Don't fall down over here!

The block maze is built on the floor of the e-mail room of the site. Children could walk through the maze or move play animals in it. The problem was that the loose blocks easily moved from their places and the structure of the maze was destroyed. Mikko gives advice to the others:

Mikko: Wait, don't move! You have to go through the whole maze!
Mikko: I have something to say! Don't move! Wait!
Adult: Wait! Mikko has something to say!
Mikko: If you get into a trap, you have to wait until I come and rescue you. I'll remove the fallen trap and animals. Ok, you can move now.

Why was the trap maze more attractive for the kids? Partly this was due to the nature of the tasks on the task cards and games used in this 5D version. Traditional school tasks were just transformed to be performed on the screen. Simple cognitive tasks did not make sense to the kids who had just started school or were preparing for starting school. The essence of the maze was a surprise you might meet at any turn. The maze was not a technical construction project, but rather the embodiment of the sense of the maze using wooden blocks.

The narrative content of the second version turned the maze into exciting play. Children started to decorate the maze they had just constructed on the basis of the wizard's initiative. But decoration was at the same time story making. When an adult asked what the kids were doing they did not hear the questions: "We cannot hear you. We are working on this." One of the few answers was: "We want to make it more exciting!" As a result the maze was a collection of children's own short stories. The stories can be red in the decorations as we can see in the explanation below.

A boy presented the decorated maze for an adult. There was one trap room constructed of stones falling down when someone enters the room. The boy presented his own construction:

Pasi: This is what I have done. It is a Witch mountain.
Adult: What happens in the mountain?
Pasi: A witch lives there.
[Places a self-made puppet witch on the mountain]
Adult: Yes.
Pasi: I made it by myself.
Adult: Look, she rests there. Is she friendly or …?
Pasi: Friendly

Adult: Or frightening?
Pasi: Frightening! She catches. If you are not silent when entering the room she may catch you.

The two first versions show that the maze and tasks are two separate realities. Children are not travelling from one task to another, but they are solving problems proposed by the wizard and travelling in a maze composed of their own challenging stories. The wizard initiated the story-making by proposing that the children might construct adventures for each room of the maze in pairs. Cognitive tasks children solve separated from the stories of the maze. An adult read the task from the Wizard to a pair of girls:

"This is the message the Wizard sent: Construct three towers of blocks. The yellow one is higher than the red one. The red one is lower than the blue and the blue is higher than the yellow. When you have solved the problem send me a scheme of it in a letter. Good luck!"

[The girls construct three towers: the yellow highest, the blue and the red are the lowest]
Erika: No, we have to take one from this and one more.
Adult: Does it fit?
[Reads once more the instruction]
Pauliina: We have to move one yellow block. The blue is higher than the yellow
Erika: The red is higher than the red
Pauliina: Read once more?
[The adult reads the instruction once more]
Erika: But we don't have enough those blocks
[The girls start to mix the colours in order to have a higher tower]
Adult: How do you know what colour is that tower?
Pauliina: This is blue because there are most blue blocks
[The girls take the extra blocks off]
Adult: Did it say that you have to use all the blocks?
Erika: Now I know
[Makes the yellow tower lower]
Pauliina: The blue was higher.
[The girls solve the problem by checking each colour in turns]
Erika: Now.
[The adult reads the task once more and the girls check the towers]

The problem solving situation started with a conflict when the girls quarrel about who can play with the blocks. The adult reminded that they should solve the problem jointly. After this the work proceeds as a genuine joint process, but the solution is attained only after the adult's hint that all blocks are not necessary. The role of the Wizard in this version is not so far from the role of an ordinary teacher who gives the task, encourages the children to attack the problem and checks if the solution is correct. The difference is that the Wizard is a virtual teacher and the adult represents it in the immediate problem-solving situation.

The conclusion of the two first versions was that a stronger narrative frame is needed with preschool children if we want to construct a coherent framework for activities of the fifth dimension and a transitory activity system. Children are able to handle problems, but problems at preschool age are not tasks in the traditional meaning. Tasks defined by the adults do not make sense for small children in the same way as the narrative frame.

5. What are the dimensions of development?

The idea of the fifth dimension was introduced to children as a metaphor of having fun and learning together with other children. The preceding four dimensions are more or less unintelligible for the children. They are physical dimensions (dot, line, space and time). How is

it possible to move from one dimension to another and from physical dimensions to psychological ones? What are the other psychological dimensions preceding the fifth dimension?

If we adopt the Vygotskian view on development, a new stage requires a new social situation of development and reorganization of social relations as a prerequisite for individual changes. We can suppose that this idea of a developmental mechanism can be used in a dimensional description of development. At each transitional period a new social and cultural space is created and a new dimension of development opened.

By bringing the idea of dimensions to the Vygotskian description of human development the fifth dimension is not any more a metaphor. It is the developmental challenge of organizing activities in a narrative environment.

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