

NARRATIVE PROBLEM SOLVING IN TEACHER EDUCATION

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The Challenge of school learning

The Finnish school system has been evaluated positively in two PISA studies in 2000 and 2003 (OECD 2001, 2003). The success was explained by referring to system effects: “Finland’s high achievement seems to be attributable to a whole network of interrelated factors, in which students’ own areas of interest and leisure activities, the learning opportunities provided by schools, parental support and involvement as well as the social and cultural context of learning and of the entire educational system combine with each other (Väljärvi et al. 2002, 48).

Among system characteristics we can emphasize problem-solving orientation of school work in all school subjects. The comprehensive school reform introduced in the 1970’s a unified school form in the whole country with regulated subject matter teaching (the number of lessons is defined in law). During the nine years in comprehensive school each student solves about 15 000 problems and tasks having cognitive emphasis. These factors may explain at least partly the fact that there were less weak students in the Finnish sample than in other countries and the dispersion was clearly smaller. In this sense the school really unifies and problem solving in the two first PISA tests is similar with daily school problems. The emphasis of problem solving is seen in other phenomena, too. Finland was among the last countries in a comparative international study of school satisfaction and learning motivation. About 25% of students have learning difficulties or other problems.

Comparative studies have revealed a contradiction between cognitive and motivational domain of learning. The problem is attacked at European level by emphasizing the perspective of life long learning as the most important principle of all education. In Scandinavian countries constructivist-learning concept is introduced as the model of school learning. But a new learning concept is mentioned only as a goal of teaching in new Finnish curriculum documents and it has not changed assignments and tasks in books and learning materials. This allows the continuation of teaching and instruction as earlier. My own analysis on the nature of assignments and tasks in Finnish schoolbooks revealed that over 90% of assignments focused on the reproduction of the text as the “correct” answer. If the existing task system is not changed constructivism is interpreted as reproduction of knowledge and skills indicated in schoolbooks.

The same challenge is met in teacher education as the problem of teaching practice and theoretical mastery of teaching profession. Constructivism is mainly known as a term and not as work practice. Student teachers have to train their skills of planning and give

lessons in classrooms during their teaching practice. But they have usually to follow a strict planning scheme, which is also the main criterion of evaluation of student teacher's teaching skills. If a student adapts his instruction to pupils' interests and deviates from his lesson plan, he will meet with criticism because the goal is to transmit certain knowledge and skills. Thus constructivism is possible in the frame of existing subject matter shown in books and teacher's goal setting. But genuine constructivism has to start from children, and their present developmental level (Hakkarainen et al. 1997).

We have started two experimental projects in teacher education focusing on the development of children as learners. A traditional approach to train student teachers is to teach skills of lesson planning, demand fundamental subject matter knowledge in each school subject and mastery of practical teaching methods. But these skills do not focus on child development and long-term effects of school learning. Our main problem is how is it possible to change and develop motivation and students as subjects of learning? A helpful theoretical frame in our approach has been the idea presented by D.B. El'konin: the ultimate goal of teaching and learning cannot be problem-solving skills. More important is how teaching and learning is changing the child or how the child changes himself unconsciously. An essential motivational change will be from the willingness to be taught to the desire to change self.

A curriculum and school practice aiming at developmental transitions has to be constructed differently compared to traditional approach. The role of imagination, narrative learning, meaningful cooperation with others and creative nature of children's thinking are important. Narratives and stories are essential elements in developmental curriculum. Bruner (1990,77) even claims that narrative is the basic form of mother - child communication before verbal language: "one of the most ubiquitous and powerful discourse forms in human communication is narrative. Narrative structure is even inherent in the praxis of social interaction before it achieves linguistic expression."

The point of departure in developmental curriculum and school practice is the specific nature of children's thinking and the purpose is not to replace a child's elementary thinking by adult's ripe thinking: "Children's thinking is not merely some embryonic and simple form of adults' thinking but has distinctive characteristics of its own - some of which are clearly superior to typical adults' thinking." (Egan 1999, 3). Children's creative imagination and flexibility makes a difference. Children's thinking is quite complicated very early and clearly different compared to adult's thinking.

Why narrative problem solving and learning?

The attempt to change the learning concept of school education in Finland is limited to cognitive domain. Even if child development is connected with learning, developmental transitions are understood in cognitive terms. The amount of correctly solved assignments and tasks is the central indicator of individual's developmental transitions in every day school life. We can talk about universal cognitive developmental transition e.g. in Piagetian (1971) experiment when a child understands that the actual amount of liquid

does not alter in spite of the change in its appearance when moved from one container to another. It is supposed that creative thinking is involved in all developmental transitions. Feldman (2003) even claims that developmental transitions and creativity are inextricably intertwined and it is impossible to understand one without the other.

But how creative thinking and developmental transitions can be introduced to school life, which usually is reiterative and reproductive? If we suppose that creativity is domain specific as Feldman (2003) does, cognitive developmental transitions can be traced by describing the developmental stages or levels that represent the core knowledge and skill of the domain. In order to contribute something of value to the domain the existing set of levels has to be transformed. Developmental transitions are defined as cognitive transitions knowing that something important is left out. These factors are mentioned, but not included in the description of transitions, but should be taken into account. Such factors are broader contextual issues such as social, cultural and historical realities.

If universal cognitive developmental transitions, creative thinking or a person's motivation and ability to change himself are defined as goals of constructivist school learning, cognitive domain defined in terms of knowledge and skills is not enough. An interesting attempt to change the nature of school learning and cross the boundaries of cognitive domain was the "El'konin – Davydov" learning theory. The basic idea of this theory is that the theoretical core concept of each domain of knowledge should be studied historically by following and repeating the birth process of each system-forming concept (Davydov 1996). In this approach creative thinking is studied by constructing basic tools for understanding how central systems of knowledge are historically developed.

Experimental schoolwork based on the theory demonstrates how universal cognitive developmental transitions are produced in the classroom by changing teacher's orientation and teaching methods towards pupils' joint creativity. An essential factor in this change is the development of children's motivation and initiative. The teacher guides children's dialogues and mutual interaction aiming at creative solutions by introducing more complicated learning environments (Zuckerman 2007).

In our experimental work we have tried to develop children's creativity through imagination and play orientation in order to wake up learning motivation and children's initiative. Careful reading of Vygotsky offers a hint on what kind of learning situations are needed in order to change motivation. His general law of cultural development can be interpreted that a dramatic collision in social space can be a springboard for a subjective change process. How dramatic collisions can be created at school in a way, which leads to pupil's motivational development? How can we develop such tools in student teachers' study process? We emphasize the role of narrative learning in this task. We aim at constructing a developmental trajectory from play activity to school learning. Our hypothesis is that constructing a special transitory activity system best supports this developmental transition. The hypothesis is based on every day observations at school start.

Our proposal for transitory system 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. Narrative learning is based on psychological products of developed role-play, but learning takes place in a space between imagined and real situations. Narrative learning combines in a flexible way 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).

Play world is partly based on Vygotsky's (2004) analysis of children's creativity and imagination. He emphasized the syncretic nature of children's creativity and aesthetic activity. Play is the prototype of all aesthetic activity. He wrote: "This syncretism points to the common root that unites all different branches of children's art. This common root is the child's play, which serves as the preparatory stage for his artistic creation."

By taking aesthetic and syncretic nature of play as the point of departure it has been possible to construct joint play worlds of children and adults continuing for months. A theme of play world can combine written stories, story telling, music, dramatization, visual elements, the use of roles (teacher in role), imaginative play, construction of activity environments etc. A long-term evolving play world has a developmental super task (Stanislavski 2001) or it is based on developmental needs of the child group (e.g. fears, acceptance of differences, lying etc.). The choice of themes should be based on children's real problems and combine problem orientation with narrative activities. The basic problem (developmental super task) is dealt with each time from different aspects.

The problem solving connected with themes of play worlds are not ordinary well-defined problems. Play worlds often present problems as riddles of sense making, which presuppose creative unordinary solutions. There is a possibility to raise each time concrete problems in the frame of the general theme. Adventure and the classical story line of folktales in which the hero meets different challenges and problems is a normal element of each session. The realism of the problems included in the story line can be varied as well as children's participation in their solution.

An excellent example of how technical and psychological problems can be intertwined with imaginary story line is "Forest stories" by Tony Wolff. Gnomes, elves, dragons and giants are the main figures in the books, but they are solving problems and developing original solutions, which are very much alike with human history (e.g. the use of the wheel, moving under the water and in the air, the use of levers etc.). Solving problems imbedded in stories and play worlds we can call "narrative problem solving", because a problem is closely connected with a story line or theme.

Narrative learning in which the sense created by a story or play is united with multilevel problem solving is a better candidate for the model of transitory activity system than other proposals. Narrative learning is based on the products of play activity, but problem solving is not any more taking place in an imaginary situation, only. We can suppose that narrative problem solving is not any more imaginary, but not yet realistic. Realism and imagination live side by side in the child's activity.

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 follows the aesthetic logic of play activity.

We can describe narrative learning by using the basic model of an activity system in the following way:

Figure 1 Triangular model of narrative learning

The object of narrative learning is the tension between meaning and sense of 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 narrative environment are intertwined with the story lines, are essential. Problems met in 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. We can talk about the use of symbolic resources of surrounding culture in children's activity. This is connected with the breakthrough of "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 the 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 the possibility for creative experimentation.

At the stage of pretend play there are successive transitions from play to negotiations on pretending and back to play (Hakkarainen 1990). We can suppose 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? These problems can be solved with dialogical tools by using the dialogic model of educational interaction (Zuckerman 1997)

Dialogue is also needed in revealing the sense of narratives, because every story includes something more than just the evolving story line. As a result several interpretations are possible. Comparison of individual interpretations and experimentation with sense making is necessary for understanding. A typical form of training in interpretations is

play with rules and games, which require discussions on the rules and continuous checking of them.

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 themselves. The use of roles is not visible in role actions; the level of imagination is sufficient.

Narrative learning is carried out in narrative learning communities. In "play worlds" adults and children construct the community jointly for each theme. All children are not present at the same time in all 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 results defined in advance. The learning of the community is an open-ended process in which individuals take part in different ways.

The division of work in a narrative learning community has two levels: between adults and children, and between individual children. The adults are responsible for the continuity of a theme and for bringing new material in on 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 transition to school learning or the learning activity proper. As a transitory activity system narrative learning is not a pure role-play, but it is not yet systematic school learning either.

Narrative model of curriculum

Egan (1986) proposes that instead of using a linear planning model derived from Ralph Tyler's (1949) useful, but industry-influenced objectives-content-methods-evaluation scheme, we should construct an alternative model based on the creative nature of children's thinking.

The demand for an alternative narrative model of curriculum is based on the nature of children's learning (Wiggins & McTighe 1998, McCleary 1993) or developmental effects of curriculum (Hakkarainen 2002, 197) or dialogical nature of human understanding (Hall 1977). "Learning becomes more coherent as topics arise and re-arise naturally in response to questions, inquiries, and reactions. The need and opportunity to rethink must arise out of the curricular structure, not the teacher's style or the learner's persistence in interrupting an otherwise unbroken march through content" (Wiggins & McTighe 1998).

The prototype of the narrative model of curriculum is a story (Collins et al. 1997). Dewey understood the power of story in curriculum design: "Much assistance in the selection of

appropriate material may be derived by considering the eagerness and closeness of observation that attend the following of a story or drama. Alertness of observation is at height whenever there is plot interest. Why? The balanced combination of the old and new, of the familiar and the unexpected...alternatives are suggested, but are left ambiguous, so that our whole being questions: What happened next? Which way did things turn out? (Dewey 1933, 253).

Taking the logic of a story, as the basic model of curriculum does not mean that teaching turns into story telling. The whole movement of problem-based learning is based on the logic of a story. This logic better suits for the character of learning and action than linear explanation of facts. Narrative logic breaks the traditional didactic principle of proceeding from simple things to complicated or from known to unknown step by step in teaching. Good stories always have a multi-layered structure which makes them fascinating. The same feature should be included in the structure of curriculum.

Egan (1986, 41) proposed “the story form model” for curriculum design. A starting point of any story is a contradiction or opposite. The story of “Cinderella” is about tension between good and bad and all turns and features of the persons of the story are related to it. The same tension is present in all situations in which we try to find meaning or structure of phenomena.

The story form model includes the following five elements:

1. Identifying importance
 - What is most important about this topic?
 - Why should it matter to children?
 - What is affectively engaging about it?
2. Finding binary opposites
 - What powerful binary opposites best catch the importance of the topic?
3. Organizing content into story form
 - What content most dramatically embodies the binary opposites, in order to provide access to the topic?
 - What content best articulates the topic into a developing story form?
4. Conclusion
 - What is the best way of resolving the dramatic conflict inherent in the binary opposites?
 - What degree of mediation of those opposites is it appropriate to seek?
5. Evaluation
 - How can one know whether the topic has been understood, its importance grasped, and the content learned? (Egan 1986, 41)

Egan (1997) recommends a critical discussion at the stage of revealing the critical opposites of the story. Otherwise children may stick to stereotypes proposed in dichotomies.

Further elaboration of “the story form model” has led to the differentiation of curriculum design according to the kinds of understanding: somatic, mythic, romantic, philosophic

and ironic. Each kind of understanding does not spontaneously develop at a particular age, but occurs when appropriate forms of imaginative education are used adequately. It is supposed that kinds of understanding enable people to make sense of the world in different ways and they need to be accomplished in a certain order because each kind of understanding represents an increasingly complex way of learning to use language. A set of cognitive tools should be acquired to develop each kind of understanding using specific planning frameworks (somatic, mythic, romantic, philosophic, and ironic). In the advanced planning framework system “the story form model” is the same as mythic planning framework (Egan 2005, <http://www.ierg.org>).

The proposed story model of curriculum and set of planning frameworks presuppose new skills from the teacher, which even may look contradictory. The teacher should be flexible and creative, but at the same time analytic and reflective. A role metaphor could be a dramaturge searching for a solution in transforming the script into children's living action. This kind of work with curriculum and plans has to be an essential part of pre service teacher training.

Narrative problem solving in practice

A good, multilayered text can provide a beginning point for developing different meanings and orientations in children's play activity. Adults and children together step into the text and start to jointly create a shared imaginary world. An important character of texts used for this purpose is their dramatic quality and challenging plot. The text should be open to several viable interpretations. Usually, texts like this were written for both adults and children. Examples include Winnie the Pooh, Alice in Wonderland or Moomin Troll.

Our research documented that adults and children can indeed construct shared play-worlds based on such texts. For example, adults may take on the role of one of the story characters and, in this role, they visit the children in an everyday environment, such as their classroom. Such dramatizations appear to make adult participation in play worlds easier for both adults and children. Role characters and their dialogue with children help the use of imagination. A role character is a mediator between the literary world and every day reality and can enhance adults' possibility to develop children's play and imagination.

Physical changes in the environment help to turn an ordinary setting into another world. This can be a joint project of adults and children. Adults can use artistic methods of theatre purposefully to create live experiences in an imaginary world. All methods of aesthetic expression can be combined in the creation of play-worlds. These methods include dramatic scenes, music, dance, painting, storytelling, etc.

Since 1996 joint construction of play-worlds has been part of our experimental work to vertically integrate groups for children between the ages of four to eight years of age. The use of play-worlds is also a familiar approach in integrated educational work in multi-age grouping. These groups bring together children from day care, kindergarten (six years old) and elementary school (first and second graders). Approximately 70 – 80% of the time, these

children work in one big multi-age group. During the remainder of their time in school, they work in smaller, age segregated groups. Shared play-worlds make it possible for all children in these broad age groups to participate equally in learning experiences. The following section includes a description of the construction process in a recent project based on the text by famous Swedish writer Astrid Lindgren. The play-world was based on her novel *Ronya, the Robber's Daughter* and was carried out during spring term 2003.

The teacher's educational goal in this play world was to develop the feeling of togetherness in the children's group and, thereby, enhance individual children's social skills. Within the group of 26 children, 10 had diagnosed special needs. Some were hyperactive and unable to concentrate. The theme started before Christmas vacation in 2002. Teachers read the book to the children in parts during December and the children wrote diaries reflecting on the story or made drawings. The children saw the same story on video just before the break. When they returned to school in January, teachers initiated a discussion about the most exciting characters in the story. The children said they would like to construct a play-world based on the troll community in the story. The troll world was constructed from removable caves and other equipment. The children moved to the play-world by changing their hand made troll dress, painting their faces and going through a tunnel.

The collision between the roles

The adults discussed how to develop togetherness through children's play-world. A special problem was hyperactive boys in the group. After doubts they decided to create a troll character (a teacher in role) imitating the uncontrolled behavior of these boys. The children have elected a "village elder" for their play-world.

Episode 1.

Children have prepared a banner of each "cave group" and one group is presenting its product when suddenly a troll character (a teacher in role) appears among them. She proceeds on her four, sees a plate with small object in front of her, turns it immediately upside down and the objects fall on the floor. She starts to fondle them.

Children: What is your name?

Troll Mirkku: Can I eat them? [Starts to pick the objects back on plate]

Children: What is your name?

Troll Mirkku: Mirkku

Children: Are you some body's friend?

[She starts to tease children by tickling and pushing them and suddenly disappears through the tunnel she came in]

Children: She disappeared!

Teacher: What a mess she left behind.

The atmosphere totally changes in a couple of minutes. The appearance of Mirkku interrupts children's adult guided presentation and the voices rise higher and children start to move around. Impulsive deeds and teasing provoked children to impulsive behavior.

Episode 2.

Mirkku comes back to the play-world, all children are around her, move, jump and make loudly noise. She retires in a corner and children circle her. The “village elder” tries to calm the situation.

Village elder: Come from there! Leave her alone!

Peter: They don't leave her. You have to command them!

[The “village elder” comes near and shouts to the children around Mirkku]

Village elder: Come away from there

[The children do not obey him and he fetches the bell and starts to ring]

Mirkku: What is that noise? Why the bell rings?

Children: The elder rings for silence.

Village elder: Come away from her! [Shouts loudly and rings the bell]

In this episode the roles of adults and children have changed. The children call for order and the “village elder” tries to calm the situation. In usual classroom situations the adults control children's behavior. Now children turn to the “village elder” in order to calm down noisy children. The bell is a symbolic tool of the elder. At the end of the play session children sit down for discussing the situation, Mirkku sits down, but continues to disturb. Adults raise the question: “What shall we do with her?”

Episode 3.

Next day children start to tell to the teacher who was Mirkku that they had a visitor in troll world. They blamed that she destroyed every thing and broke their hand made plates. The videotape of the visit was shown to the children. This viewing session raised questions about how the rules of the troll community could be made more effective. The children moved to the troll world and started to formulate the rules for the case that Mirkku comes to pay a visit. The children have worked in small “cave” groups and have gathered to decide on the new rules. Each group present their rules for others, the “village elder” gives turns.

Eileen: 1. Walk, don't run! This disturbs others.

2. Behave decently! This means that you must not break any thing.

3. Talk silently!

4. Use doorways!

5. Three persons on the couch at the same time!

Welcome Mirkku!

After the presentation of all rules children state that they made strict rules. They conclude that if breaking the rules is observed the elder calls a meeting and after discussion a punishment is decided together. The rules were placed on the walls of the troll world.

Episode 4.

The bell rings and the elder call a meeting of trolls. The children come and sit down. The elder tells that there were more than three persons on the couch at the same time.

Girl A: I saw four persons at the same time.
The elder: Tell honestly!
Boy A: Who are these four?
Girl B: I saw them, too.
Teacher A: What shall we do?
Boy B: A punishment for them.
Girl C: Who came there last?
Teacher A: Was it so bad that you have to think about punishment?
Children: Yes.
Boy B: A punishment.
Teacher A: What do you think?
The elder: This time there will be no punishment, but next time.
Boy D: Let's give them a yellow card.
Boy B: No a red one.

The children discuss seriously and the elder leads the discussion. The usual quarrel, "that was not me" is totally absent. The children find quickly who broke the rules and start to discuss what is the punishment. The teacher (who was Mirkku) is following the discussion and comments only occasionally.

Challenges for teacher education

Challenges for teacher education are not only at the level of individual teaching skills. They are organizational and cultural as well. The following five are central for us:

1. How to prepare students for continuous learning, experimentation and development at work?
2. How to prepare students for teamwork, assisted performance and culture of participation?
3. How to introduce new ideas of theory-practice relation to teacher education (e.g. activity settings, value-based practice, developmental transfer)?
4. How to introduce the new narrative model of curriculum?
5. How to use the model of cultural learning as the alternative for constructivism and problem-based learning?

Personal participation in curriculum development is often hindered by the problems of professional development at work. Professional preparation for work at school is often too narrow and there is an abyss between pre-service preparation and first year's practice. At least one year is needed for learning necessary practical skills (Hakkarainen 1996). After practice learning period the main sources of learning are still connected with work practice, but the traditional school organization cannot provide new learning opportunities for a teacher working alone with a group of students (Tharp et al 1988, 2000).

A solution for this problem can be a system of teacher education, which takes a life long learning perspective of a teacher's work carrier. The first challenge is overcoming the practice shock at the beginning of working life. A heavy burden of preparation is set on introducing and practicing existing work methods. Experimentation is not encouraged in pre-service preparation or in classroom work. Further personal development depends on personal initiative of each individual teacher.

One of the reasons for low activity in curriculum development at school level is connected with organizational learning. The main function of supervising is control, not assistance in performance. At schools, which have started teamwork a new approach to curriculum development can be seen. A challenge for teacher education is to start experimental and developmental teaching in assisted performance, team teaching and cultural learning. Value-oriented cultural learning replaces narrow subject matter for wider integrated cultural wholes.

Activity settings call for a broader context of learning. It is the basic unit of meaningful learning. If school learning aims at sense making and meaningful learning in practice the basic unit of curriculum should be redefined in terms of activity settings (or activity systems). Activity setting is the basic unit of teacher-student interaction, as well. This unit is necessary for organizing joint productivity and creativity in teacher-student interaction. This basic unit should be the main goal of student learning in teacher education.

The idea of developmental transfer is based on the activity concept (Tuomi-Gröhn et al. 2003). The traditional definition of learning transfer is criticized as too narrow. The ready-made knowledge mastered formally in one context (in the classroom) is not simply carried to another context (e.g. real life situation) to be applied. Transfer is much more complex phenomenon and its fruitful use presupposes a new approach to contexts of learning and knowledge. Activity settings or systems will give a new impetus for analyzing and producing learning transfer.

The concept of developmental transfer hints for a new approach for organizing teaching practice in teacher education. Learning tasks to be carried out during practice periods have a different character when they are connected with change and development of activity systems. The task cannot be a limited problem, which can be solved individually. Learning tasks connected with developmental transfer have often boundary-object characteristics. Their solution presupposes collective efforts in teams and networks. Learning tasks for developmental transfer can be used in teaching practice of teacher education (Hakkarainen et al 1997, Lambert 2002).

In our experimental project of teaching practice (Hakkarainen et al 1997) aimed at training of lesson plan construction and few hours' probes in teaching before our intervention. The situation was changed by organizing practice using activity settings as the unit. Each group of teacher students took responsibility for planning, teaching and evaluating a whole course for basic students. The focus of learning in practice was on student learning instead of techniques of instructional planning.

The presence of several partners and their points of view in teaching practice change the approach to curriculum. The partners negotiate the evolving curriculum during practice. Such practice periods cannot be mere moments of implementing and applying knowledge learned during “theoretical” periods. Joint productivity and construction of practice oriented theoretical knowledge necessary in development of persons and activity settings presupposes a new solution for the old dilemma how to unite domains of development (cognitive, affective and psychomotor). Teacher education cannot continue the tradition of developing these domains one by one separately.

References

- Collins, R. & Cooper, P. J. (1997). *The Power of Story. Teaching through storytelling*. Needham Heights: Allyn & Bacon.
- Dewey, J. (1933). *How we think: A restatement of the relation of reflective thinking to the educative process*. Boston: Henry Holt.
- Egan, K. (1986). *Teaching as story telling*. Chicago: The University of Chicago Press.
- Egan, K. (1997). *The Educated Mind: How cognitive tools shape our understanding*. Chicago: University of Chicago Press.
- Engeström, Y. (1987). *Learning by Expanding*. Helsinki: Orienta Konsultit Oy.
- Feldman, D.H. (2003) The creation of multiple intelligence theory. In Sawyer, R. K. et al. (Eds.) *Creativity and development*. 139 – 185. New York: Oxford University Press.
- Hakkarainen, P. (1990). *Motivaatio, leikki ja toiminnan kohteellisuus* [Motivation, Play, and Object-orientation of Activity]. Helsinki: Orienta-Konsultit.
- Hakkarainen, P. (1996). Teorian ja käytännön integrointi ammatillisessa aikuiskoulutuksessa (Integrating theory and practice in professional adult education). In Lambert, P. & Engeström, Y. (Eds.) *Kehittävä työntutkimus ammatillisissa oppilaitoksissa*. Helsinki: Helsingin Yliopiston Kasvatustieteen laitoksen julkaisuja 150, 3 -33.
- Hakkarainen, P. (2002). *Kehittävä esiopetus ja oppiminen* (Developmental preschool teaching and learning). Jyväskylä: PS-Kustannus.
- Hakkarainen, P. & Janhonen, S. (1997). Teaching practice as a test-bench of learning in Master's degree education for nurse teachers in Finland, *Nurse Education Today* 17 (6),454- 462.
- Hall, E. T. (1977). *Beyond Culture*. Garden City: Anchor Books..
- Lambert, P. (2002). Boundary-crossing Place as a Tool for Developmental Transfer between School and Work. In Achtenhagen, F. & John, E.G. (Eds.) *Milestones of Vocational and Occupational Education and Training*. Bielefeld: Bertelsmann.
- Lindqvist, G. (1995). *The Aesthetics of Play. A Didactic Study of Play and Culture in Preschools*. Stockholm: Almqvist & Wiksell.
- McCleary, R. C. (1993). *The Logic of Imaginative Education: Reaching Understanding*. New York & London: Columbia University, Teachers College Press.
- OECD (2001). *Knowledge and skills for life. First results from the OECD Programme for International Student Assessment (PISA) 2000*. Paris: OECD.
- OECD (2003). *Learning for Tomorrow's World. First results from PISA 2003*. Paris: OECD.

- Piaget, J. (1971). The theory of stages in cognitive development. In Green, D., Ford, M., Flamer, G. (Eds.) *Measurement and Piaget*, 1 – 11. New York: McGraw–Hill.
- Stanislavski, C. (2001). *My Life in Art*. London: Methuen Drama.
- Tharp, R.G. & Gallimore, R. (1988). *Rousing minds to life*. New York: Cambridge University Press.
- Tharp, R.G., Estrada, P., Dalton, S.S., Yamauchi, L.A. (2000). *Teaching transformed: Achieving excellence, fairness, inclusion and harmony*. Boulder: Westview Press.
- Tuomi-Gröhn, T. Engeström Y. (2003). *Between school and work: New perspectives on transfer and boundary crossing*. Amsterdam: Pergamon.
- Tyler, R. (1949). *Basic principles of curriculum instructions*. Chicago: University of Chicago Press.
- Vygotsky, L. S. (2004). Imagination and Creativity in Childhood (L. R. Stone, Trans.). *Journal of Russian and East European Psychology*, 42 (1), 7 – 97.
- Väljjarvi, J., Linnakylä, P., Kupari, P., Reinikainen, P., Arffman, I. (2002) *The Finnish success in PISA – and some reasons behind it*. Jyväskylä: University of Jyväskylä.
- Wiggins, G. & McTighe, J. 1998. *Understanding by Design*. Alexandria: ASCD.
- Zittoun, T. (2006). *Transitions. Development through symbolic resources*. Greenwich, Connecticut: Information Age Publishing.
- Zuckerman, G. (1997). The transition from preschool to school activity. A Vygotskian perspective. *Tijdschrift voor Ontwikkelingspsychologie* 23 (4) 205-229.
- Zuckerman, G. (2007). How to support children's initiatives? *Journal of Russian and East European Psychology* (in print).