

CHILDREN'S PLAY IS THE ORIGIN OF SOCIAL ACTIVITY

Publ. in European Early Childhood Education Research Journal. Vol. 10 No. 1 2002 pp. 39-53.
Monika Riihelä Ph. D.

Stakes National Research and Development Centre for Welfare and Health
BOX 220, 00531 Helsinki Finland

Resumé

The article is based on my study, *Playing researchers*, which was published in two parts, as a video and as a text (Riihelä 2000). This research and development project focussed its attention on children's thoughts and collaborative behaviour by using the new Storycrafting method. The play and interaction of small, 1- to 6-year-old-children in educational situations organised by day-care personnel was recorded on videotape (in total, 14 hours, 20 children, 5 adults). The research showed that children's thoughts and viewpoints are brought out when they are allowed to play an active role and when educational work is directed by children's ways of producing knowledge through telling stories, playing and doing research.

The joint activity of children and their ways of producing knowledge were analysed and compared with adult practices and learning environments. Among other things the research showed that, due to their innate collaborative playing skills, their zest for life and their rich imaginations, children find the patterns of human interaction very early on. Sociality, in fact, originates in children's play. Important features in the formation of collaborative activity are expressions, gestures, looks, initiatives and responses and the rhythms of joint activity are regulated by rules which may be externally directed or emerging from within the group.

Keywords: video research, Storycrafting method, small children's collaborative activities, learning environments, adult practices, children producing knowledge, sociality, children's play

Les jeux d'enfants sont l'origine de l'activité sociale

Monika Riihelä Ph. D.

Mél : monika.riihela@stakes.fi

www.stakes.fi/childknowledge

STAKES Centre national de recherche et développement pour les affaires sanitaires et sociales

B.P. 220, 00531 Helsinki, Finlande

Résumé

Ma recherche *Playing researchers*, qui comprend une vidéo et un texte, porte sur l'enfant et une collaboration autoguidée entre les générations dans le contexte d'une communauté. De petits groupes d'enfants sont organisés par des adultes dans le service de garde. Le matériel se compose de 14 heures de métrage vidéo. Dans la vidéo analysée et rédigée (51 minutes) les enfants (N=20, âgés d'un an à six ans) racontent leurs pensées et examinent l'eau et le feu.

Par l'analyse des investigations jouées des enfants et leur collaboration - les initiatives, les réponses et les règles - on arrive à une compréhension plus profonde de l'activité sociale. Dans ces trois éléments constitutifs de l'activité sociale, tels qu'ils se manifestent dans l'interaction entre les enfants, on observe divers phénomènes en germe. Dans ma recherche je

présente un nouveau modèle théorique pour l'investigation de la dimension sociale dans le processus d'apprentissage.

Das Spielen der Kinder ist der Anfang der sozialen Aktivität

Monika Riihelä Ph. D.

Abstrakt

Dieser Artikel erzählt von der Gemeinschaft basierende Studie *Playing researchers*. Diese ist eine aufs Kind gerichtete Studie, zusammengesetzt aus einem Video und einem Text. Im Mittelpunkt dieser Forschung steht das selbstorganisierte Zusammenwirken der Generationen. Kleine Gruppen von Kindern werden in Tagespflegesituationen von Erwachsenen organisiert. Das Grundmaterial besteht aus 14 Stunden Videoband. Im analysierten und editierten Video (51 Minuten) erzählen die Kinder (Anzahl 20, 1 bis 6 Jahre alt) von ihren Gedanken und untersuchen Wasser und Feuer.

Durch Analysieren der gemeinschaftlichen Aktivität der Kinder und ihrer spielerischen Untersuchungen kann ein tieferes Verständnis der sozialen Aktivität erreicht werden beim Beobachten der Initiative, Reaktionen und Regeln. In diesen drei Grundelementen der sozialen Aktivität tauchen mehrere keimhafte Phänomene auf. Ich werde hier ein neues theoretisches Modell der sozialen Dimension beim Lernen präsentieren.

La base de la actividad social se encuentra en los juegos de los niños

M.R. Doctor en Ciencias Políticas, Ph.D.

Stakes, Centro Nacional de Investigación y Desarrollo para el Bienestar y la Salud
Helsinki. Finlandia

El artículo se basa en mi investigación 'Espontáneos investigadores' que ha sido publicado en dos partes/versiones: en video y en texto (Riihelä 2000). El proyecto de investigación fue realizado prestando especial atención a la manera de pensar y actuar de los niños utilizando el método Storycrafting.

Las actividades y los juegos de los niños de 1-6 años fueron grabados en video durante las actividades educativas (organizadas) en la guardería (un total de 14 horas, 20 niños, 5 adultos). La investigación demostró que el mundo y las opiniones de los niños salen a la luz siempre que se toma en consideración su actividad y siempre que en la educación se tiene en cuenta la manera especial de los niños de reconocer el mundo mediante cuentos, juegos y otras actividades.

La cooperación de los niños y sus métodos de reconocimiento fueron analizados y comparados con los métodos de trabajo y el ambiente de aprendizaje de los adultos. La investigación demostró, entre otras cosas, que gracias a la habilidad de jugar, la capacidad de actuar y la rica imaginación, los niños descubren muy pronto el panorama de la interacción humana. El ambiente social nace, en realidad, en los juegos de los niños. Para la formación de la actividad social lo importante/ lo que importa son los gestos, gesticulaciones, miradas, iniciativas y respuestas, y también las reglas, externas o internas, que regulan el ritmo de la acción común. The data for this study (Riihelä 2000), which consists of video recordings was collected in two day care centres. The collection was preceded in one of the centres by four years and in the other by one year of consultation and work development periods. The development work was connected with my study *How do we deal with children's questions?* (Riihelä 1996). Part of it was a continuation of Stakes' national (Karlsson 1999) and Nordic (Riihelä 2001 b) project known as Children's Storyride. In the developmental projects we were searching for new ways of working with children which would respect their personal and collective methods of producing knowledge.

The situations that were video recorded were part of the children's normal day care routine and the adults' work. The children responded freely and easily to the camera and the presence of strangers. We discovered that the children were able to produce, in an amazingly natural way, collective stories and investigative activities that were improvised, collaborative and enthusiastic. In their own groups they developed we-intentionality and collaboration. They entered into discussion out of their own desire to tell or out of their own curiosity. The situations were not practised in advance. Nor were they the results of traditional pedagogical teaching.

A community-based method for analysis of video records

In my earlier research (Riihelä 1989 and 1996) I have used video material in the traditional way, transcribing words and action into text. The transcriptions have been analysed, categorised and sub-categories have been compared. However, in this research I have treated the video material differently. The analysis, categorisations and comparisons have concentrated directly on the video material. After completion of each analysis stage the filmmaker has cut the material according to my directions. With the help of the new cut version I have gone onto the following analytical stages. That activity was observed in which children were the initiators. I have been looking for the answers to two questions with the help of the analysis:

*What do children talk about when operating together?
How does their co-operation proceed?*

I have related this activity amongst children to children's activity with an adult. This way of editing material I call a method of intensifying reality. By editing and combining the most active situations into a new weave it has been possible to render visible the elements of children's joint social activity. There are 20 children and 5 adults appearing on the videotapes.

CRUCIAL FACTORS THAT AFFECT CHANGE IN SOCIAL ACTIVITY

Before the arrival of the comprehensive day care system children were usually at play out of the sight of adults. These days children are more watched over and pedagogical play, adult-initiated activities, have increasingly become a part of children's lives. Children's own play differs from that which is adult directed and it develops amongst children who are familiar to the various languages of play. The differences in expression and stress are extremely subtle. A long-term lack of such companionship or the misunderstanding of play language can lead to children being excluded from the group. The development of play is always a social phenomenon indicating changes between the actors and the objects. In the observation of small children's own collective behaviour, it is the child communities that are seen to be central. The most important members of this community are the playmates (Corsaro 1997). This kind of play companionship appears wherever children meet and are allowed by adults to develop their play in peace and in time.

The meaning of the term social has been defined in different ways and there is a divergence of opinion on the relationship between group and individual. The individual takes the primary position when the focus is on individual human activity and developmental stages. Community-based human activity is emphasised when human action is seen as a creation of group activity. To quote Timo Järvillehto (2001): "Traditionally consciousness and the self are conceived as belonging to the individual in some absolute sense. However, an 'I' may be defined only in relation to somebody else. 'I' and 'You' are conditional upon each other. Thus, an 'I' may exist only if several individuals exist, making a common organisation possible. An individual is nothing without the co-operative organisation, because he gets his properties only through other individuals; we could even say that an individual is the co-operative organisation, but only from a limited

perspective. And this perspective is set by the characteristics of his body defined in relation to the other individuals. This is also the perspective, which defines the self."

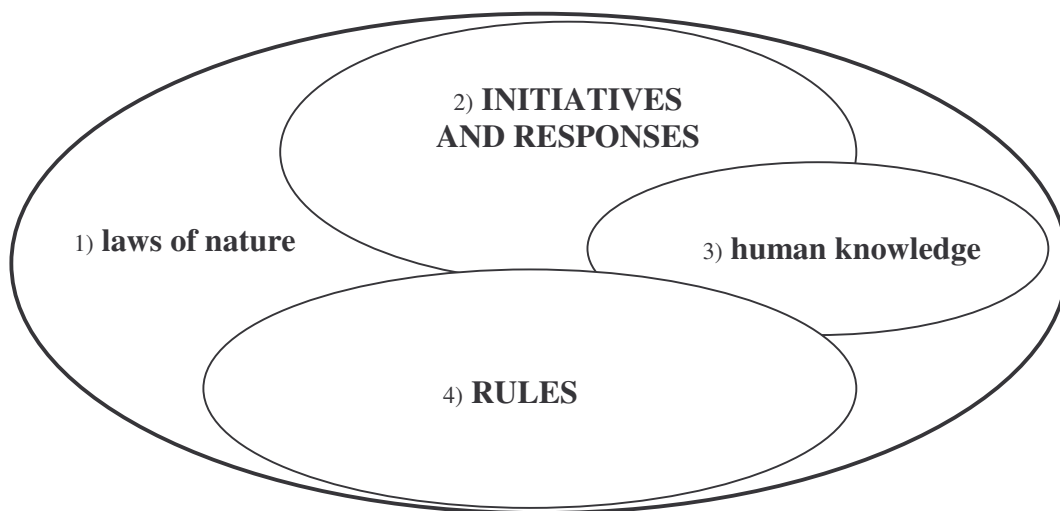
In the child institutions which participated in this development work teachers were searching for dynamic and creative situations arising amongst the children. The teachers activated the collective processes that were going on in the children groups. Many issues were to be considered in the search for ways to organise work in this fashion.

The storycrafting method (Riihelä 1991) was the main tool for giving the floor to the children for different purposes. It was used in the first place in order to make the children's and adults' dialogue more democratic. In the second place we used the method to find out the children's own ways of producing knowledge. In our search for new methods which would stress children's ways of producing knowledge, our standpoint was that when children are learning something new it is not sufficient to handle their learning activities with an adult-centred approach. Using the storycrafting method, the children's point of view and their thoughts and questions became visible. Material was obtained from the children themselves with which learning environments and situations could be constructed that especially suited these children's way of producing knowledge.

In the third place we used the storycrafting method to strengthen the feeling of solidarity in the children's small groups and their collective activity. We had to arrange certain activities to guarantee organisation by the children themselves and the development of their own play and research. The adults occasionally had to enter the children's world to look for children's questions and to see how the surroundings might be changed to provide these children with ample opportunities to work on matters which they consider topical. The situations were varied so that every group member got the chance to offer initiatives, verbal and non-verbal, which the others had the opportunity to respond to. I will now go on to describe social processes by taking into account four interrelated entities: laws of nature, human knowledge, initiatives and responses and rules used in group activities (see figure 1).

FIGURE 1

Factors of change in social activity



The laws of nature can appear as regular or irregular phenomena, as order or chaos, consistency or chance, as static states or dynamic systems or as externally directed or self-directed processes. Human beings are born with the capacity for turn-taking, that is, to alternate between initiatives and responses. Small children make initiatives and wait for responses at the very beginning of their co-operation. They give responses and they wait for new initiatives. They are

also capable of setting up a special rhythm with another in an interactive – social – situation. There are many studies about interaction with newborn babies which indicate these new viewpoints (Trevvarthen 1999).

Consciousness, or in this respect human knowledge, consists for instance of thoughts and feelings, perception and motivation, individual and collective intentions, everyday and traditional culture, subordination and collaboration, power and influence.

The rules which govern nature also regulate human behaviour. Man is a part of nature's multiplicity, whether as a biological being or in terms of mind, language and concepts. However, our knowledge of these rules is still poor. Sociality is understood here as the dialogue between the human mind (including both individual thoughts and the cultural products of society) and other natural phenomena (including people). Sociality takes shape in the ever-changing interactive situations and its characteristics cannot be discovered in the characteristics of any individual member.

The starting points for the examination of man's sociality are not social characteristics or external features but social change as a manifestation. Interactive situations never repeat themselves identically since there is always a question of change. The social affects the action and the mind and vice versa. To be social is to be in a relationship, to act interactively. Social activity takes place with something or someone. It proceeds through alternation, which itself is governed by the rules of activity. These rules are norms, agreements, habits, customs, laws and decrees, comparable to the rules within the laws of nature. Factors that change the activity are initiatives and responses or stimuli and reactions. The rhythm of action and the relationships between the actors are organised by applying different kinds of rules. Sociality needs to be analysed in relation to what and who are in the interaction and who is the other participant in the interaction, in other words what or with whom communality emerges.

INITIATIVES AND RESPONSES IN EARLY CHILDHOOD EDUCATION

Initiatives and responses in human interaction are at the core of the dialogue. There is more and more research evidence showing that children are active learners, the subject of their own learning behaviour creating their own knowledge structures (Wertsch 1998). This has resulted in the demand to make education and teaching more reciprocal, a balanced social activity of two active practitioners. Individuality and communality will become entangled with one another in a new and interesting way. From this point of view the traditional education way of teaching children to be social becomes untenable.

In research it has been noticed that a child's individuality comes into its own more clearly and emphatically when children work collaboratively together in small groups (Riihelä 1989). When individuals are obliged or permitted to say aloud their own thoughts and back up their own views in their peer groups, they are noticed more as people and thinkers. Their viewpoints are given common use. The situation is entirely different when children do individual work for themselves, with adults controlling large groups. The adult accounts for about 80% (Wertsch 1998) of all speech turns and initiatives. In a group of twenty children this means that each member has only 1% of the time to express his or her own ideas. The individuality of pupils is hidden behind the teachers' talk.

Accentuating children's own experiences and thoughts in successful learning activity also means major changes in the adult-child relationship. Teaching and learning blend into reciprocal and balanced social activity. What we need is knowledge about where and how this kind of reciprocity can be achieved. Similarly, the factors need pinpointing which prevent children from being active.

At the heart of conversation

It is in the micro-world of education and teaching, in the dialogue between adult and child, where we find practice which maintains the subordination of the children's world (Riihelä 1996). The smallest unit of conversation is the dialogue between two people. First one speaks and then the other connects his speech to the same subject. The progress of the dialogue is affected by many factors, such as the situation, the matter in hand, the participants and their wishes and desires to influence. For example, a conversation between two close people can proceed in such a way that one makes all the initiatives in the discussion and the other follows. On the other hand, it might be that the division of the initiatives takes place more or less equally. In actual fact, the one who remains in the position of defendant is the first one to be conscious of the unequal status of the participants. Women and customer research have revealed the distortions of influence in both gender and expert customer relationships (Billig 1987).

In conversations between experts and clients, such as in doctor's surgeries, law courts, classrooms, day care and in diagnostic situations in welfare clinics, a similar conversational core, the one-sided feature of influence, has been observed (Drew & Heritage 1992). A doctor forms his questions to a patient in such a way that, based on the response, he can as specifically as possible assess the patient's state and define the problem. The doctor asks the questions, the patient answers, the doctor assesses the patient's response and makes a certain diagnosis. The doctor-patient dialogue proceeds according to the three-turn rhythm: 1. Expert's question – 2. Client's response – 3. Expert's evaluation. The patient's questions and evaluation of his/her own situation remain unheard in this discourse culture. In pedagogical and educational conversations the basic pattern is similar. The carer/teacher in traditional pedagogic situations has either to develop the child in a certain direction or follow whether the child has learnt what was intended: 1. The teacher questions – 2. The child answers the adult's question – 3. The teacher estimates the child's response in relation to the educational objectives. The adult's evaluation may be stated out loud: "You did that well and correctly", or it may be a quiet thought: "This child did not understand what should have been done". In the three-pronged expert conversations the expert takes the initiative and the client/child is in the position of respondent.

The expert accounts for two-thirds of the conversational phases and there remains only one third for the client. When teachers are working with large groups of children, such as in school lessons or in day care, the situation takes on a certain shape because of this tradition of discourse. The teachers often deal with the whole child group as one participant in the dialogue with themselves as the other. On this occasion there are only two participants in the conversation, one the child group and the other the adult.

This phenomenon was also obvious in the video material of the study *Playing Researchers*. In many situations the adult's activity was so overwhelming that the co-operation between children was destroyed. Because the focus of this study was on children and their co-operation, the passages of intensive adult activity were cut out of the video report.

The storycrafting method approaches the core of democratic talk

An interaction is a situation in which one gives and gets, in which one determines things for others or in which the participants create things together. Who gives in an interaction, and who gets? Who determines and who follows? Can every child have something to give, including something of use to adults? Democracy presupposes equal interaction also from the point of view of benefit. Many of the concepts concerning children spring from the assumption that children are not useful, at least to adults. Children become useful only when they become adult. But could a child's smile, a trusting look or a boundless imagination not actually be seen as useful as significant social capital? Somebody holding a new born baby can feel, even physically, how the primitive life force flows

from the apparently helpless bundle to the bottom of the adult heart. Later on, children may talk about matters which have never come to the adult's mind, and which may be of importance in our lives.

The development work, which was the focus of the study *Playing Researchers*, was principally based on the theory of the storycrafting method and the knowledge gained through listening to what children want to tell (Riihelä 2001 a). Work with children was arranged in a new way so that, in the day care centre, all the children were asked to tell their own stories on several occasions during the project. Their narratives and their thoughts were transcribed as such, and were used, for instance, when the adults were planning their activities with the children. This storycrafting method, which respects children's own knowledge and experience, has opened up a new channel of interaction.

The method has been developed over many years. Using this method requires nothing more than an open and listening mind, and pen and paper, or not even that. The child is asked to tell a story, just that kind of story he or she feels like telling. The adult promises to write it down whilst the child speaks, in the words and manner that the child uses. When the child thinks that the story is ready, the adult reads it out loud. It may be corrected if the child wishes. The story is created quickly, also in groups.

In the *Storyride*, which began in Autumn 1995, the communal meaning of the children's own stories is emphasised by reading them to other children and by fastening them to the wall for parents to read. The correspondence network of stories has been built within and between municipalities, as well as far beyond the borders of the country. The stories travel to and fro across the Nordic countries. They are translated and published (see: Broström & Georg 1997, Habbestad 1998). The network spread rapidly. The most distant knots in the net from here in Finland are South Africa and China.

By encouraging children to tell their own stories we succeeded in attaining the core of democratic talk with small children (Karlsson 2000). The result has been impressive. When we started we could not imagine that we were close to the bubbling source of children's very own narrative culture. From the flow of the children's own stories, over 5000 Finnish stories have been filed as well as 400 original stories told in the other Nordic countries. The stories have been told by children of different ages. The youngest narrator was 8 months of age and the oldest 15 years. All the stories differ from one another. There is something unique in each one. The stories can be found in *Lasten Satulehti*, 1996-1998 (*Children's Story Magazine*) and in the children's own storybooks *Kissa lähti kävelylle ja hiiripiiri*, *Cat out Walking and Mouse Club*, (Kemppainen, 1998) and *Voitko olla?, Play with me?* (Kemppainen & Riihelä, 2000).

The storycrafting method appears to suit everybody. Shy children are encouraged by listening to other children's stories and later they tell their own. Boisterous children find material in the story world with which they can entertain their listeners. Through telling stories together the children get to know each other in a new way. Parents feel pride over their children's skills and rich imaginations. Instead of replacing local dialects with standard expressions, the valuable heritage of dialect is preserved through the stories.

In telling their stories, linguistically disabled children have encountered understanding, often for the first time, in their own language, a language which experts deem deficient and faulty. These children use the same storycrafting method as children who speak normally. Their missing letters are also left out of the written and reading stages unless they expressly say that their stories should be corrected and read in standard language.

The Storycrafting method differs from the traditional and still very useful storytelling in a couple of ways. People have told each other stories through out history. It is a good way to get acquainted with traditions, with other people, different cultures etc. It is also very useful in the contacts with children. The Storycrafting method does not replace the benefits of storytelling, but it brings something new and particular to the relation between attendants. The difference from

storytelling is that in storycrafting you actively make situations for concrete sharing, by writing down the heard story and by retelling it. In addition there is no evaluation of the content of the story or the way the narrative is dictated.

CHILDREN AS PRODUCERS OF KNOWLEDGE

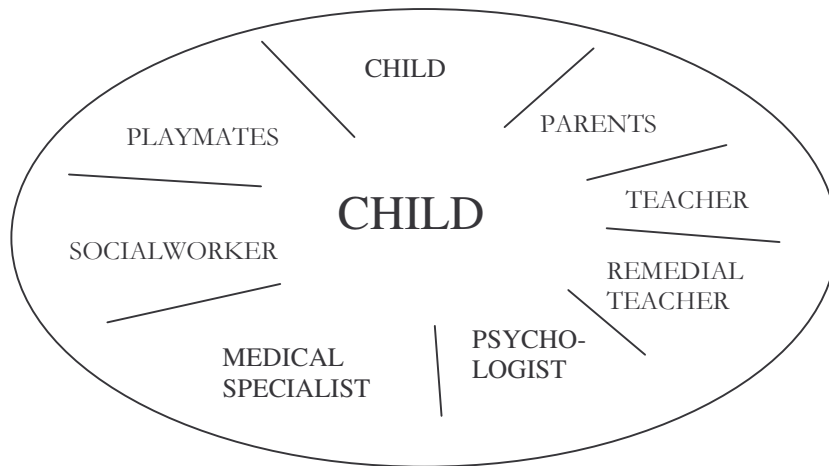
I proceed now to the third entity of social processes, human knowledge (figure 1), pointing to the view of children. When we try to gain insight into children's and adults' shared social activities through research and written reports, what invariably remain concealed are the children's own experiences and their orally expressed knowledge of particular situations. This problem directs us to one of the main problems in child research, namely the application of theoretical orientations that do not understand children as subjects, but rather as objects of adults' activities. Objectification has a long tradition which emphasises general, written and context-free knowledge at the expense of local, oral and empirical (Toulmin 1990). Today the interest in context-based research is increasing, but there are still great difficulties in comprehending the child's world.

It can be claimed that every person, child or adult applies the knowledge he or she has constructed in a very personal way. A certain statement is truthful when looked upon and justified from a certain angle. Angles vary ad infinitum and justifications may often seem insufficient and even incorrect to another person. When a child claims that night arrives when the sun sets into a cloud, it is consistent with the observation that, during a sunny day, there are clouds on the horizon behind which the sun disappears in the evening. This observation by a child is very important to him or herself as well as to others since the mode of observation illuminates a certain angle of events concerning the sunset. When another child offers another idea of how night begins, a debate might follow and possibly also the need for further study. This is an example of a case in which children are given the opportunity to deal with a subject from their own starting points while exploiting their own experiences (Riihelä 1989). Dynamic knowledge evolves according to the user and is pertinent to the situation in which the knowledge is being used. Regularities in change will be studied, theories formed and applied. In other words, there is an on-going quest for the correlation between the different bits of knowledge.

A dynamic conception of knowledge is unequivocally associated with skills, emotions, equality, imagination and reflection. Dynamic knowledge is adopted through the processing of thought. Experience and reasoning take turns. Culture is transferred and adapted to fulfil the needs of the following generation. Knowledge is accentuated through active search. Creative learning and thinking skills becomes the aims of education and teaching. Using traditional concepts of knowledge prevents, in particular, children's participation in both the production of research knowledge and in the organisation of practical work. Figure 2 depicts a situation where a some professionals are trying, for example, to support John in his learning problems. The focus is on John, who is set in the centre. Both John and his parents are interviewed to gain deeper understanding of the situation. The professionals are involved in examining the situation and they all express their opinions about possible solutions. In this way, John is being examined from different view points, beginning from different disciplines and theoretical backgrounds. Although the child is apparently at the centre of the adults' interest, John's own opinions are just one small part of the collected information used to create the strategy for solving his problems.

FIGURE 2.

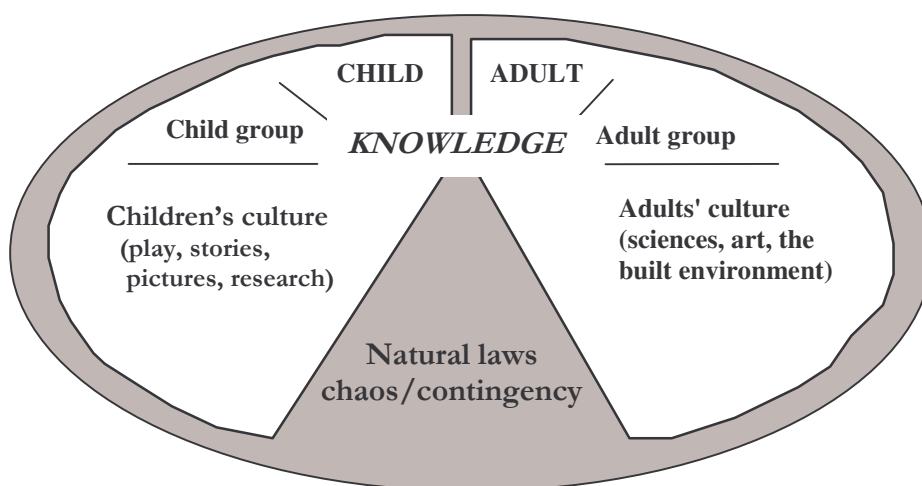
Points of view on children's world when the child is in the centre



The focus shifts when the child is not in the centre anymore, but the question is more about the producer of the knowledge in the situation, as seen in figure 3. The problem is approached by focusing on what knowledge and whose knowledge is used or left unused in research, education and teaching. Knowledge is taken to include not only scientific and cognitive knowledge, but also such things as experience, perception, and feeling. No matter at what age or developmental phase the person is, everybody has experiences and knowledge related to their own life. One can justifiably claim that even before birth and before the speech phase, children have experiences, perceptions and feelings.

FIGURE 3.

Different points of view on children's world, the available knowledge of the situation being in the centre



"What or whose knowledge is used or not used?" is the main question to be answered. To solve John's problem one could jointly examine a situation in which the problems are visible. A certain episode, such as failure in a mathematics class, could be examined: one could investigate the learning

environment, and whose' experiences and knowledge is being applied in the class. What is the state of the air in the class room, does it include a lot of carbon dioxide? Have the teacher and the children had enough rest and physical exercise to improve their concentration and cognitive skills? Are children only doing calculations that the teacher introduces or are the mathematical problems based on children's questions and interests? Is the teacher the one who is talking in the class or are the children in dialogue with each other? Who is paying attention to John's problems? The teacher, his classmates or John himself? Are there some misunderstandings between people that are related to John's problems? Do other children see John's difficulty as a problem or is it only something that the teacher observes? Does John have problems with his perception, problems that may prevent him from seeing and understanding things like the other children?

The laws of nature, including chaos and change, are crucial sources of human knowledge. It depends on a given situation to what extent some parts of the natural phenomenon becomes the focus of examination. Furthermore, knowledge is produced by, on the one hand, the child and the child group and on the other hand, by the adult and the adult group. And still, both child- and adult- communities produce knowledge. When research focuses on the producers of knowledge (in the broad sense), children and adults are offered the chance of a non-objectifying dialogue and the shaping of shared knowledge. The main problem in child-related research, that is, to render visible and significant the knowledge of child and childhood, can be solved by focusing on who has the opportunity to produce knowledge used in the situation.

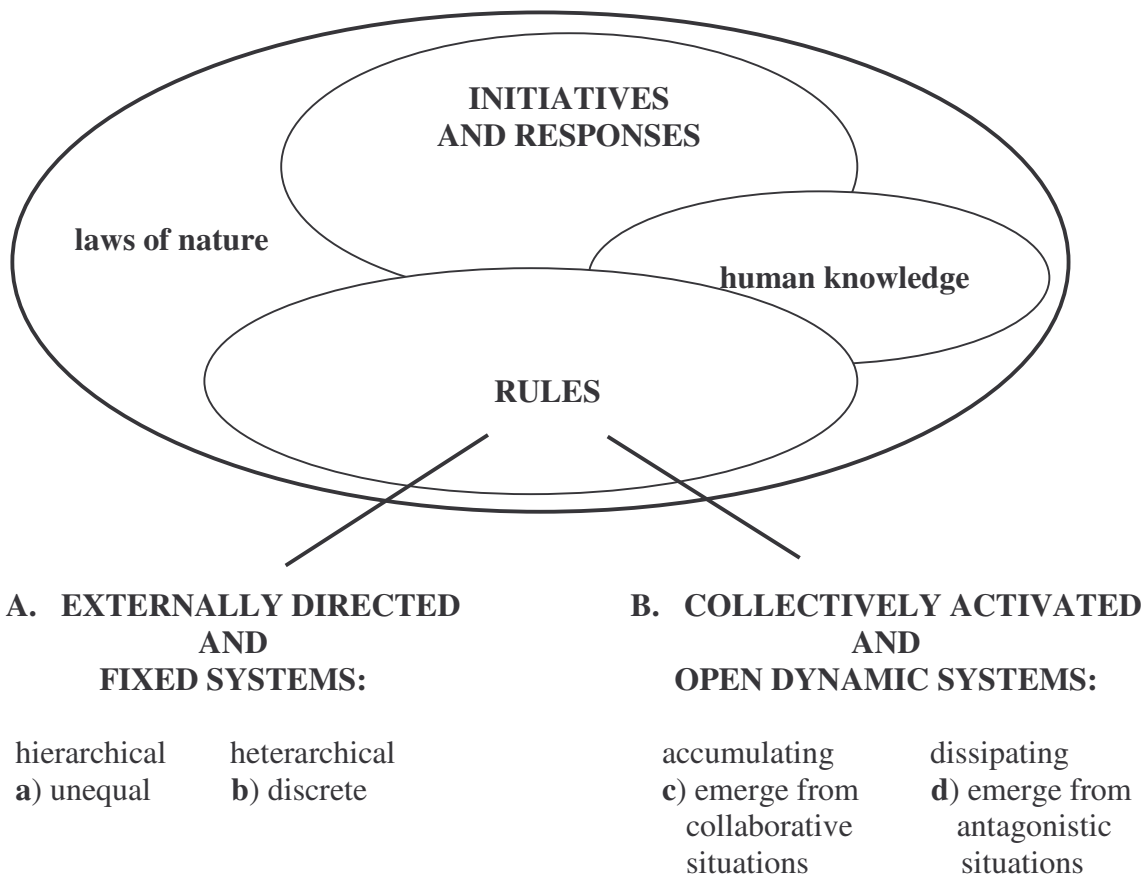
RULES CREATE CLOSED OR OPEN SOCIAL SITUATIONS

The fourth entity that causes changes in social activity are the rules that govern human sociality (see figure 4). These rules of social activity can be understood as ongoing processes that organise the activities in a group in different ways depending on which kind of rules are used. These processes can be divided into two classes, externally directed and collectively activated (see fig. 4 A and B). These processes develop events which are either fixed or open dynamic systems. Externally directed activities are either hierarchically or heterarchically organised. Collectively directed activities are either accumulating or dissipating.

Social situations vary according to how existing laws and rules are applied and whether new rules are created in the situation. Is the situation open and dynamic or closed and pre-determined? Is it dissipating or accumulating?

FIGURE 4.

Factors of change in closed and open social situations



Externally directed hierarchical rules include laws and man-made decrees as well as those rules which not everyone is aware of, which everybody may not be able to apply and which are used to achieve supremacy, whilst others are subjugated. The situation is closed when the rules are set in advance. When small children play with water, as on the Playing Researchers video (<http://www.stakes.fi/playingR.rm>), their actions with their hands are regulated by the fixed characteristics of wet and dry, amongst other things.

Rules can help to locate the participants in a hierarchical position (fig. 4 A. a), as is the case in traditional education and teaching. With other rules the participants are positioned equally (fig. 4 A. b), heterarchically, as in a card game for example. In heterarchical systems the rules of activity are also set in advance, as in many sports for example. The inter-personal relationship is equal, although it is important in action to follow the jointly agreed rules. Game and role theories can be seen as located in the externally directed group of fixed systems.

Accumulating open systems (see fig. 4 B. c) emerge when, as they say, we all pull together. The rules are created during the action, as in open discussion situations, or in creative project work. These are situations that increase group collaboration and work energy. Dynamic, open social situations take shape when people work with each other or in their own mind with an imaginary being. Collaboration in social situations occurs in a jointly-directed manner when the rules are agreed upon in the course of the activity. Open discussions between adults adhere to this interactive approach, as do children when they are developing free games or doing playful research together.

In human intercourse there are countless dynamic and open social situations. When newborn babies meet their parents' gaze for the first time, this kind of delicate, open situation ensues. Initiatives are made as much by small children as they are by adults. Decisions about what to do and how to do it emerge spontaneously between two close people.

In human activity open systems can also be what we call dissipated (see fig. 4 B. d) and this is when there appear antagonistic relations between the participants. We can here talk about self-directed action that is tainted by the objective of one individual's benefit at the cost of others. Rules are created in the course of the action, not in search of a common denominator but through conflict in the relationships between members.

In reality, action emerges through both open and fixed rules, simultaneously and within each other. General customs and culture prescribe fixed manners of behaviour amongst adults even though we may be creating new, specific rules for the advancement of project work, for example. Language is also a factor which is set in advance although it contains many elements from which the user can freely choose and which are not previously specified. Spoken language in particular contains many levels of freedom.

IN PLAY, THE SOCIAL SEEDS

In play you can find all kinds of rules organising the joint activity. As we see in the current data, children in play, form their co-operation. Understanding children's play with the equivalent concepts to those used for the activities of communities formed by adults, you can find the core of social activity in children's play.

A collectively induced organisation is observable when children are at play together. Theories of play have often over-simplified very complicated events, neither can explanations of play organisation be found in individually oriented theories. Children's play is usually comprehended through their developmental stages. One common way of categorising children's play has been to classify them into primitive individual and parallel play that gradually develop into more sophisticated collective play. Individual play has been understood as a situation in which children play their own games with their own toys. In parallel play children play different games with similar toys, for example, children fill their own buckets in the same sandbox. Collective play is spoken of when children play the same games with the same equipment, for example, playing house, doctors or tag. The old classification has its origins in Parten's research of 1932 (Niiranen 1995). This viewpoint can be compared with describing forest life by saying that when trees grow they at first stand alone, then gradually they are next to each other and finally they are together, when their branches are touching. The interdependence of the forest's thousands of plants and animals, the soil, the water and the climate, the whole ecological system, is all left out of the examination. The many levels of children's play and their mutual interdependencies are usually ignored. By analysing children's play with the concepts of initiatives, answers and rules you can find two categories of play: plays with set rules and plays with creative rules (figure 5).

the help of this play language the children set up and created the rules needed for this activity which would go on for several hours.

The children started the joint play by negotiating the theme. There were several proposals on offer amongst the players. "What shall we play?" "Shall we play lizards?" "No, I think we should play dinosaurs. I could be a dinosaur father, you could be their child." "No, let's play something else." This was the mode of discussion when children negotiated, when they prepared the ground for the next stage, the decision-making: "Hey? I know, let's play dolphins!" "Yeah!" in which the theme of play is chosen. After this there follows the division of roles, and again using a new word form: "That one would still be small and this one the strong one." The individual 'You' and 'I' were left out and the collective 'we' brought it up to the area of we-intentions. When the roles had been thought up and shared out there was a moment to negotiate the starting point of the drama and the movement rhythm. When the youngest started with an eager young dolphin's life of diving, an adult dolphin came out of the play for a moment to teach the smaller, so that the play got the thematic tension it needed. "The small dolphin doesn't move like a mother. It moves like this." And immediately the young dolphin tries another swimming style: "Oh, like this?" "Yeah." The play began somewhere in the dolphins' life and continued until one of the players came up with a new departure to the plot. A child came out of the play, changed the tone of voice and proposed a new rule, a way of acting. "Hey, that one could go further away, so that it gets lost. And this one comes to look for it."

On the stage of the play and in the play the players spoke to each other in dolphin language and from within the roles, which they had agreed upon together. This language was matched to the theme. It could be dolphin sounds or the dolphins could also use words. By their intonation the children differentiated their messages in countless speech styles.

Nevertheless, the most amazing aspect of children's collectively-created pretend play activity is, how they, as well as changing their speech styles and intonation, know how to use their whole body to express the particular manner of movement of whatever role figure. Adults have not taught children to distinguish a dolphin's movement from a whale's, or a dolphin baby from that of an adult. Neither would adults have been able to teach children the rhetoric with all its sub-species which are so well adapted to this play organisation. Where does it come from then? It is obviously a question of collective processes that are directed by the children and in which the characteristics are charged by the group's energy.

In the study, the children on the ice of Lake Tuusula were asked to study water and the reasons why ice melts. But the children went further and combined fishing with how to make fire. Suddenly the children organised a collective playful bit of research combining fishing with fish, snow, water and fire elements. Here is an extract from the video report, How to make it catch fire and fish?, in which 4-5-year-old children make their inquisitive experiments:

- *Here you have a good fire! Up there!*
- *It's burning, look!*
- *Hey, put it there in the snow quick*
- *Otherwise it'll catch fire worse. - Yes, a real fire*
- *I'll take it to the water*
- *The fish will eat it!*
- *Fish eating fire.*
- *Ville, let me try a little, can Jussi try too?*
- *Yes, we'll do it in turn.*
- *I put this deep.*
- *Wow, how deep ... a fish will grab it!*
- *Ville, let's see who catches a fish first.*
- *Have you got a little stick?*

- Yes
- Why has Jussi got a big one?
- Don't throw it!
- Come here, now here's a bigger fire!
- Come and see over here, Jussi!
- Can I try one thing with your stick again?
- Yes, but give it back then.
- I must throw this to the fire.
- Do we need more wood then?
- Now mine caught fire!
- Mine caught fire!
- Mine caught fire Jussi!
- Yes!
- Would this work, I put smoke in there ... then they - swim over here and then there'll be lots of fire there - then they'll dig out of here and then - I'll get them from here if I fish with that stick.
- Oh, you've got the idea to put fire in this hole - so the fish flee to that hole and then you'll get them, asked the teacher.
- Yes, with a stick. Have to make a snowball, and fix it to the stick - so they'll think it's a worm, answered Jussi.

RESULTS OF THE ANALYSIS

More exhaustive analysis of children's play has resulted in a noticeably more complex picture of children's communal play. In Niiranen's analysis (1995 85), she concludes that children's interaction amongst themselves is different in pretend play from other situations. "... the interaction in pretend play may be more demanding than most ordinary adult interaction." (Ibid. 91.)

But we can go still further and claim that play can be understood as the core of sociality. Play always arises together with one or more others. Children's play can be perceived as collaborative in three ways, depending on who or what is representing the other participant in the play. The other party may be a) a being or phenomenon, b) a figment of the imagination or c) other people. Whether playing with a phenomenon, moving shadows, experimenting with one's own footsteps, putting tongue, lips and sounds together, touching objects and so on, the child is looking for regularities and the laws of alternations. The shadow moves on the wall. Does it always move in the same way? The doll feels soft in the hand but rough in the mouth. When the rattle falls on the floor, mother comes and gives it back. The rattle falls on the floor by itself, but does not put itself back in the hand. Changes in phenomena and experiments with them tell of regularities and variations. When a hand pushes a ball, the ball starts rolling. When a hand pushes a wall, the wall does not move but the hand feels the pressure. Play with imaginary figures is a reduced example of playing alone in which the company is the child's self-selected being. We-intentions and joint scripts are constructed with other people (and with pets, for example).

It is possible to make the social visible and the changes between participants understandable using the model of the analysis of the four elements, laws of nature, human knowledge, initiatives/responses and rules that indicate fixed or creative changes in social activity. The same model is useful in discovering for regularities both in child and in adult group activities. The analysis of children's research and play activity as externally directed and collectively activated phenomena offers useful tools for evaluating the significance of children's initiatives. It is possible to take the rules which guide communal activity as the focus of observation. It would be necessary to expose both fixed and open events in order to be able to consciously influence them and promote the emergence of processes charged with positive energy. This naturally concerns adults as much as children.

Group processes do not take shape as a sum of the characteristics of the group's different parties, but depend on the situation itself. The rules governing human activity are systemic, with features both chaotic and organised. This is a simmering phenomenon which influences the actions of the group in a variety of ways. Whatever is going on in the encounter is significant. It is connected to earlier actions or events, to how long has it been going on, and so on. On the other hand the creatures in the encounter only offer certain sides for the group's use, depending on what the intention of the encounter is. The situation depends on each one's interest, knowledge and, for example, the present state of alertness.

The study, *Playing Researcher*, shows clearly that, for small children, playing and doing research are interlaced into joint social events. The movement of children's hands and feet and their investigation of the elements of water, give new insights followed by silent questions and further experiments. Spontaneous play stops for a moment and the activity becomes an endeavour to understand some phenomenon and try new combinations, such as fishing with the snowball. Suddenly a new insight sets the imagination flying and the children move into the world of play and creativity. Small, microscopically fine actions, social expressions and so on, which promote collective behaviour, are full of meanings which the group members fit together, sometimes into play and sometimes into collective research activity. In their play children also use drama to create new experimental togetherness.

Children's own play has the same elements as that of adult social activity. According to the results of this research it is important to give children of all ages a substantial part in planning the activities in child -institutions. The ways that children produce knowledge need more attention.

References

BILLIG, M. (1987) *Arguing and Thinking*. (Cambridge: University Press)

BROSTRÖM, S & GEORG S. (1997) *Børnehistorier på rejse* (Danmarks Lærerhøjskole København)

CORSARO, W. (1997) *The Sociology of Childhood*. Thousands oaks (Pine Forge press)

DREW, R. & HERITAGE, J. (1992): *Analyzing Talk at Work: an Introduction*. In: DREW & HERITAGE, *Talk at work*. Cambridge (Cambridge University Press)

HABBESTAD, H. (1998) *Barnas egne fortellinger* (Bjørnebekken barnehage Tromsø)

JÄRVILEHTO, T. (2001) *The self and free will in the framework of the organism-environment theory*. Karl Jaspers Forum, Target article, TA36B.

KARLSSON, L. (1999) *Saduttamalla lasten kulttuuriin*. *Into Children's Culture with the Storycrafting method* (Stakes. Helsinki)

KARLSSON, L. (2000) *Lapsille puheenvuoro Ammattikäytännön perinteet murroksessa*. *Giving children the floor. Transition in the tradition of professional practice* Helsinki: Edita.

KEMPPAINEN, K. (1998) *Kissa lähti kävelylle ja hiiripiiri* (Kotkan kaupunki)

KEMPPAINEN, K. & RIIHELÄ, M. (2000) *Voitko olla? E du me mej?* (Edita)

- NIIRANEN, P. (1995) Arka lapsi päiväkodin vertaisryhmässä (University of Joensuu Publications in Education. N:o 24. Joensuu)
- RIIHELÄ, M. (1989) Children's Group Learning and Time Concept. Lasten ryhmäoppiminen ja aikakäsite koulupsykologityön kohteena (University of Helsinki, Kouluhallituksen julkaisuja 20. Helsinki: VAPK)
- RIIHELÄ, M. (1991) Aikakortit – tie lasten ajatteluun. Time Cards – The Way to Children's Thinking. (Helsinki: VAPK)
- RIIHELÄ, M. (1996) How do We Deal with Children's Questions? Semantic Aspects of Encounters Between Children and Professionals in Child Institutions (Stakes. Jyväskylä: Gummerus)
- RIIHELÄ, M. (2000) Leikkivät tutkijat. Playing Researchers (Filminova. Edita)
- RIIHELÄ, M. (2001 a) The Storycraftng Method (Filminova. Stakes).
- RIIHELÄ, M. (2001 b) The Nordic Project of Children's Storyride (in print)
- TOULMIN, S. (1990) Cosmopolis. The Hidden Agenda of Modernity (New York. Free Press)
- TREVARTHEN, C et. al. (1999) What Infants' Imitations Communicate: With Mothers, with Fathers and with Peers. In: NADEL, J. Imitation in Infancy (Cambridge Studies in Cognitive Perceptual Development. New York. Cambridge University Press)
- WERTSCH, J. (1998) Mind as Action. (New York: Oxford University Press)