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PATTERNS OF ADULT-CHILD COMMUNICATION IN A PROBLEM-SOLVING TASK

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CONTENTS

ABSTRACT

The present study was aimed at identifying patterns of communica-
tion. Analysis was focused on the problem-solving task, which
consisted of model pictures and wooden blocks. Parent-child
dyads were asked to build according to given model. Mothers and
fathers were considered separately. The patterns of communication
were described as follows: In Group 1 the parents tried to stimu-
late the child to find solutions and to correct mistakes by him-
self (him will be used throughout the text to refer in general to
a person of either sex) by asking the child questions and by
giving different cues, in Group 2 the task was more guided by the
adult, although mother or father performed flexibly taking into
account the abilities of the child, in Group 3 the guidance was
more stiff and the cues were given more directly and concretely,
in Group 4 the adult was observed to build much him/herself,
reaching the goal seemed to be more important than working in
cooperation with the child. Group 5 included those parent-child
dyads, which did not build according to the given model. The
distributions of mother-child and father-child dyads to Groups of
patterns were approximately similar. The relationships between
the patterns of communication and parental education and the sex
of the child were examined, too. The results revealed that all
the mother-child dyads in Group 1 belonged to the higher educa-
tion group. The same trend was found for father-child dyads, but
the finding was not statistically significant.

Secondly, comparisons were made between parent-child groups of
patterns in particular aspects of child communication. The
results indicated no differences between groups of patterns on
any measures of child communication.

INTRODUCTION

A child acquires the knowledge and values of his community mainly through interaction with other members of his culture, particularly his family members. Both verbal and nonverbal communication are essential forms of interaction.

Because the family is embedded in larger networks of social systems, the general conditions of society affect the way parents carry out their parenting functions and have an impact on the nature of parent-child interaction (Takala, 1979, 1984, 1986). The family's lifestyle and one's awareness of parenthood play a role in children's social development.

Among the environmental factors most commonly considered to influence families have been those associated with the family's socioeconomic status. One problem has been to define and study the specific linkages between society and the individual. Bernstein's sociolinguistic theory (e.g., Bernstein, 1961, 1975) has been central when considering the determinants of interaction in the family. Empirical findings on speech differences between social classes have been contradictory.

Besides the socioeconomic status and educational background, sex differences in family interaction have been a primary concern. The findings on different treatment of boys and girls are not consistent. The sex of the child has been argued to be an important determinant of parents' communication with their children. The studies of verbal interaction in the family have been concerned with discrete observable behaviors. In spite of the fact that they have been based on cross-sectional designs, verbal differences are assumed to have implications for the sex role socialization and for the development of sex differences in cognitive skills (e.g., Block, 1983; Weitzman, Birns & Friend, 1985).

A few studies on communication have indicated that it is possible to identify different patterns of parent-child communication or interaction (e.g., Wells, Montgomery & MacLure, 1979; Howe, 1981). The role of the child as a participant was found to vary according to the patterns. Howe (1981) could identify three distinct patterns of mother-child conversations. The groups differed from each other according to the initiating remark which

could be stated either by the adult or the child and according to the ending reply which could be either minimal and give only requested information or extended and give new information. The role of the child as a participant was found to vary according to the patterns of conversations. It was concluded that mother-initiated exchanges with requests for information would motivate children to improve certain aspects of providing information.

Similarly, a 'supportive' style of one mother and a 'leading' style of another mother, which were described by Wells, Montgomery and MacLure (1979), seemed to result in different conversational patterns. The first mother encouraged the child to adopt a predominantly leading role while the second mother made initiating moves herself. The first child's contributions to the conversation were rich and linguistically more mature, while the second child was cast in the role of respondent.

The results on patterns or styles of communication indicate that the extent to which children are allowed to have an active role in conversations is an important factor to the development of linguistic competence. The role of the adults in interaction with the child is then to stimulate ideas and encourage activity on the child's part so that he himself tries to solve the problems confronting him (Lisina, 1985). Sigel and his colleagues (McGillicuddy-deLisi, Sigel & Johnson, 1979; Sigel, 1982, 1986) found that parents who viewed the child as a passive recipient of knowledge used teaching strategies like structuring and imperatives which were highly didactic. Furthermore, teaching strategies were found to be related to the child's performance in tasks involving representational thinking.

One essential problem is how to identify patterns of interaction or communication. The majority of efforts has been made using structured sequential data. Methods for analyzing sequences are mostly based on probabilistic relationships between different behaviors. They have been criticized on taking place at a molecular level of analysis and ignoring the differences between the individual subjects' original event

sequences (see in more detail Valsiner, 1986).

Because the assumptions related to the methods often imply rather simple relationships between factors, while the psychological phenomena under study are very complicated, contradictory conclusions have resulted. Criticism on Markovian analysis led to development of lag-sequential analysis (Gottman & Bakeman, 1979; Sackett, 1979) and to many other efforts of analyzing sequences (e.g., Browne, 1986; Valsiner, 1986). Qualitative methods are very appropriate, when the focus is on the structured psychological phenomena. Sequence-structure analysis described by Valsiner is useful in such cases where a certain outcome can be reached through different pathways. The application of the sequence-structure analysis can be very descriptive. The method is briefly described as follows: the chain of events is broken into sub-sequences of various lengths, then the analysis proceeds to eliminate such sub-sequences that are components of longer strings and finally the list of purified sub-sequences can be analyzed qualitatively. The existence of qualitatively unique individual repertoires of action sub-sequences are then illustrated in terms of theoretical concepts. By comparing the repertoires of sub-sequences it is possible to describe how differently each subject attempts to solve his problem.

Earlier results on sequential data of this project were based on measures of basic social skills of interaction and of exchanges in communication (Rasku-Puttonen, 1987). The results revealed differences between parent-child dyads in the nature of communication. Some parent-child dyads used many question-exchanges, whereas others used many demand-exchanges, for example. The analysis of the data could not explain why parents and children used certain functions of communication more than the others, or in other words the particular context which certain interactive exchanges were related was not captured.

The present work has two main purposes. In the first place, it aims at analyzing the patterns of parent-child communication. In addition, relationships between the patterns of communication

and parental education and the sex of the child are examined. Secondly, in order to characterize the patterns of communication more widely, comparisons are made between parent-child groups in measures of the child's communication. It was hypothesized that the active role as a participant of interaction and encouragement by parents to solve the problems confronting the children would be emerged in basic social skills of interaction and in the content of communication of the children.

METHOD

Subjects and procedure

Forty-eight families of firstborn and secondborn 4-year-old children participated in the study. The experiments were conducted in two stages. This work is focused on the first stage of it. The subjects were divided into two groups on the basis of parents' education, lower education (LE)(24) and higher education (HE)(24): 12 mother-child dyads (6 girls and 6 boys) and 12 father-child dyads (6 girls and 6 boys) were examined for each. The LE group consisted of parents with only the basic compulsory education or some professional training (9 - 12 years of schooling) and the HE parents had a university degree or professional training at the college level (14 - 17 years of schooling). Approximately 55% of those contacted agreed to participate.

The first stage of the study was conducted at the Department of Psychology at the University of Jyväskylä. The videotaping sessions consisted of cooperative tasks. The focus here was on the problem-solving task, which is a goal-directed one. To control for possible order effects, the order of the task variations and the order of the dyads (mother-child or father-child dyad first) were randomized across families. The problem-solving task consisted of model-building with blocks. The two sets of models were equally difficult and the parent-child dyads were asked to build them in cooperation.

Analysis of the data

Identifying the patterns.   The analysis of communication was restricted to one session in order to get the task to be realizable. Analysis was focused on communication in the problem-solving task, because actions and communication have a defined goal and it is possible to expect great variation in the ways in which parent-child dyads work towards the goal.   For example, von Cranach with his colleagues (1982) and Valsiner (1986) have also selected goal-directed actions for the analysis.

The problem-solving task consisted of model pictures and wooden blocks.   The parent-child dyads were asked to build in cooperation according to the models.   There were two models and it was expected that one of them would be difficult for a four-year-old child and that parents would have to give their help and advice. The parents were expected when facing difficulties to try different strategies according to their experiences with their child in order to go forward.   Problems in model-building were assumed to vary in difficulty from one situation to another. Certain strategies may work some time but perhaps the next time new action sequences have to be developed.   It could be expected that an adult would try out different alternative ways of guiding that may lead to the goal.

It was realized that the differences in adult behavior may owe as much to differences between the children with whom they communicate as to stylistic differences in the parents themselves. Also the reverse is true, and ultimately the differences are very likely to emerge from the interaction between a particular pair of participants.   The parent-child communication is certainly the product of interaction to which both child and adult contribute to varying degrees.

Video-recordings were observed from the above framework. Attention was paid to the behavior and utterances of child and adult especially in difficult points of the work, i.e.   how they

progressed from the beginning to the end of the task. To be specific, the focus was on the content of communication: What are the functions of speech; what concepts are used in guidance; how concrete are the cues given the child; how much is the child himself expected to work with the problem to try to solve it; how much adult help does the child seem to need? At difficult points of the task the observer's attention was paid to the strategies which parents used, whether they used certain action sequences repeatedly or used several alternative ways.

Because there were a number of dyads which did not build the models they were asked to do, the first grouping of parent-child pairs was made on the basis of the outcome, whether the parent-child dyad built in accordance with the models or not. Those dyads which built according to the models were classified into four main groups. Before illustrating those groups the author wants to emphasize the significance of global ratings and sequences of communication, which were analyzed earlier, for the present classification of parent-child communication. The following patterns of communication could be regarded as an attempt to integrate multilevel descriptions. Although the sequence-structure analysis was not applied here as such, the description on qualitative use of sequences had some contributions to the analysis of these data.

Patterns of communication.
1. The child itself solves the problematic points and constructs the solutions on the basis of its own thinking.
- The child may be independent and skilful, in which case the role of the parent will be minimal or
- the parent may guide the child in such a way that the solutions as far as possible will stem from the child's thinking.
1a. Parental guidance tends to be very conceptual, demanding much thought from the child; trial-and-error is continued until the child finds the answer. The parent does not offer direct help until such a point where the solution process reaches a

standstill, the child not being able to find the answer on his/her own.

1b.   Concepts, explanation, guidance based on the child's thinking (less than in group 1a.).

1c.   The child needs no guidance or he needs just a little, knowing how to work independently.

2.   Parent directing situation, child mainly obeying.   Parent takes child's abilities/needs into account.
- Child's expected level of performance lower than that in group 1, child's role more passive
- responsibility for construction rests with the child.

3.   The parent directs the situation without sufficiently taking into account the child's abilities/needs. Guidance is rigid. The responsibility for the construction still lies mainly with the child.
- less is expected of the child than in groups 1 and 2; the adult expects the child to do as he/she is told, without taking into account what the child itself is capable of.

4.   The parent directs the situation, for instance, by doing the building himself.   The responsibility for the construction rests with the adult.
- less is expected of the child than in the previous groups
- the main stress is on getting the task done, not in the co-operation between parent and child.

5.   The tasks are not done, or they are done only partially.

5a.   Efforts are made by the parent to do the task or to make progress in it.

5b. The parent gives up on the task easily, or gives the child no guidance.

Particular aspects of child communication.   Measures of child

communication used in this work are based on sequential data. Coding procedures have been described in greater detail in Rasku-Puttonen (1987).

Basic social skills:
- Initiatives made by the child (frequencies, expressing the total number of interactive exchanges).
- Acknowledgements in child-initiated exchanges (proportions of the total number of interactive exchanges).
- Nonverbal reactions to the adult's initiations (frequencies).

Exchanges in communication:
- The number of question-, demand-, suggestion-, and statement-exchanges initiated by the child (frequencies).

The measures were taken from a 5-minute segment of the task.

RESULTS

Patterns of communication

Group 1.   The child itself solves the problematic points and constructs the solutions on the basis of its own thinking.

1a.   Characteristic of this group was the fact that questions were employed in attempting to solve even the more problematic aspects. The adult attempted to get the child to come up with the right answer himself, by way of explanations using various concepts (below, thick, long, shorter,...) and by way of comparisons between the model and the problem in hand.   Advice was given in answer to the child's own questions, which were meant to lead the child to find out the answer him.
    F(ather): Now, what do we have here? (looking at the picture,

looking at the blocks) -> C: These thingumabobs, let's put them like this (setting up the blocks), then ... (setting up the long block) -> F: (looking at the block, looking at the picture, looking at the blocks on the table) ... aren't there ... are long ones right? -> C: (looking at the picture and pointing) Look! -> F: (looking at the picture) -> C: (looking at the picture and finding the right solution, takes the long blocks from the construction) Are these a little shorter, let's see (taking the right blocks) -> F: Ok. (Family 17, father and daughter).

Some adults were more explicit in the use of one 'style' where the most general route taken was to proceed through the use of questions (question ... clarifying question ... explanations through concepts ... explanations with the help of pictures), some parents used several strategies of proceeding depending on the situation (attracting attention, question, suggestion to act, explanation, suggesting ...). Characteristic especially of this group was the fact that parents helped the child in different ways to ponder over the solution to the problem, and let their children test possible ways of proceeding. Only when the adult noticed that there was no other way of making headway in the task did he give more direct hints of the answer or point to the right block.

Case 1

Father and son (Family 9): At the beginning of the situation, the child picks up the block, the father moves the blocks so as to make room. He puts the picture before the child and tells him what the task is. The child says 'Ok, I'll do it' and starts to assemble the blocks, asking his father for advice right at the outset. Advised by the father, the two continue the task, the child apparently needing the help he gets. The father is flexible in giving his help. Often he points out from the models what is to be done and gives explanations at the same time. In more difficult places, he gives

more explicit hints, for instance by pointing out or suggesting the right block, or by doing the more difficult part himself. During the first construction the father attempts to outline the whole picture to the child by going through the model layer by layer. He reinforces and encourages the child much. The main emphasis in their exchanges is on linguistic communication.

Extract 1. Beginning of second construction. A problematic situation where the father tries to get the construction started by doing it himself and by explaining what he is doing. The child has already said that he cannot do it.
C: And then this! (pointing to the picture) -> F: Mmmm -> C: This is quite hard ... -> F: Yeah, this is a little harder. Let's first have a look <-> C: You need one of these here (taking a block) -> F: (looking and pointing at picture) Yeah, y'need these here too and then these thick ones there and ... -> C: And these! (taking a block) <-> F: Let's start ... I'll make this foundation first ... (setting out the blocks) this one goes here. -> C: Yeah -> F: Then ... (pointing at the picture) Look at that picture - what should we put on top? -> C: (pointing at the picture) One like that. -> F: Mmmm ... where can we find one like that? -> C: There (pointing at a block further away) -> F (taking a block) Mmmm.

Extract 2. Problem point, where child 'gives in', but father urges him to go on.
F: Then we should get ... (pointing to the construction) ... something there too. -> C: I know ... -> F: This way? What's in that picture? (looking at the picture) -> C: (adding the block in his hand to the construction) One like this. -> F: But look at that (pointing to the picture) ... that thin one must go there, then. -> C: Yeeah. (taking the block from the construction) -> F: Not yet, let's leave it till later, but how about this thick, short one now? -> C: (pointing to the

previous picture) yeah. That's not too hard - shall we try to
do that?   -> F: That? (pointing to a figure already done) <->
C: With these blocks ... -> F: Mmmm, let's make a picture like
this one (pointing to one under construction) ... we did that
one already, so let's do this one then.   -> C: That's quite
hard. -> F: Yes, it is, but we'll manage. ->

1b. The parents proceed to the solution through questions. These
questions require the child to look at the model, to make com-
parisons (same, horizontally).   Further, the parents attempt to
explain, but if the child does not solve the problem, the adult
gives increasingly more obvious clues, or in fact points to the
right block.   Several parents use a comparison of the right and
the wrong blocks to clarify the situation.

   M(other): What's this now? (showing the picture) -> C: I
   dunno.   -> M: What's it look like to you? -> C: Should we put
   two long blocks, here and here (taking the blocks) -> M: Yes,
   but are they right? Are you sure? Or is it these thicker ones?
   Listen, they're the thicker ones. Look (pointing to the model)
   are these thick ones or these long, thin ones at the bottom?
   -> C: (looking at the picture) N-o-o, the thicker ones. -> M:
   Yes. (Family 22, mother and son).

   Guidance in this group proceeds basically along the same lines
as in the previous group.   The difference is in the fact that
Group 1b was offered the correct answer more quickly than in the
preceding group, where the child was expected to take longer to
arrive at an answer.

Case 2

Mother and daughter (Family 6): Mother begins by asking which
model is to be constructed first.   The child makes its choice
and starts to construct it.   The mother holds the model in
front of the child.   Every once in a while, the mother goes
through the earlier stages in the construction of the model,

and asks what the next step will be. At problem points, the mother will encourage the daughter to look at the model more carefully, asking several times, explaining, and in cases where even this does not bring any results, often gives the right answer, while trying to encourage the child to come up with the right answer. Many 'now, look,' encouragements.

Extract 1.
M: Look at this picture (pointing) -> C: (looks) -> M: Look at these small blocks, they're just as wide as that long one - hey, have you got any the same width? (pointing to the construction) -> C: Yes. -> M: (pointing to the blocks) Is this block just as wide as that one? Is it? -> C: (puts down a new block, gives no answer) -> M: Look closely! -> C: It is. -> M: Is it? -> C: Yes. (putting down another block). -> M: How about trying this ... -> C: Look at this ... -> M: Listen, try these, they might be a better size (giving the child a block) -> C: (looks at the model and the block) -> M: Let's give it a go. -> C: Eh? -> M: Try this, see if it would be a better one to connect the others (pointing at a block in the construction). -> C: (takes a block, starts to put it down) ->

1c. In this group the child did his/her building so independently that the adult's contribution remained minimal, it being sufficient for him to keep an eye on the work and give a word of encouragement every now and then. On rare problematic occasions the parent might interfere in the construction, e.g. 'M: Er... isn't there one missing? -> C: (supplies the block) -> M: Ok', or 'adjusts' the situation by suggesting to the child that it set the blocks aright.

Case 3
Mother and son (Family 19): The situation begins with the child choosing the model he first wishes to build. The child,

however, still wants to show his mother what he has built with
his father. Upon the mother's suggestion, new models are
begun. The child does the tasks quickly, of his own accord,
with his mother providing minor 'fine tuning'. The construc-
tion proceeds, with the child commenting on what he is doing
and with the mother reinforcing. The mother provides ample
admiration for the finished task. When both tasks are ready,
they are compared, in order to judge which was the more diffi-
cult. During the construction process, the mother employed
reinforcement, suggestions and questions.

Extract 1.
M: Now we'll make ... Look, see what you take first (turning
the picture toward the child) -> C: Now I know ... Gimme this.
(pulling the picture closer) -> M: Okay. -> C: Suppose we now
do the first ... (setting down the block). -> M: Okay. -> C:
Then you need to leave a crack there ... (putting another
block next to the last) -> M: That's good. -> C: And then,
wait ... (looking at the picture) ... let's take one of these
... (putting the block down) -> M: Tha-a-a-t's it! -> C: Then
... (looking at the picture putting down some blocks) .. this
way. -> M: Is it right at the edge there? Look closely (poin-
ting to the picture) -> C: (glancing at the picture) No, it's
not, there's still a ... (moving the blocks) -> M: There's
still a small crack. -> C: There we are. -> M: Yes. -> C: Then
... (putting down the last block, looking at his mother) -> M:
(looking at the child) That was quick!

Group 2.   Parent directing situation, child mainly obeying.
Parent takes child's abilites/needs into account.

Construction in the easier places proceeds with the help of the
adults' questions 'what do you do then?' and by means of sugges-

tions such as 'look at this picture'. In problem spots, the parents used questions including the answer or they pointed out the right block.

Many parents provide the answer where the going is most diffi-cult, giving the child the correct block, or proceeding to sug-gestions, e.g. F: Then, at the other end there, there must be another one of these (giving the child a block) ... this is it, then. -> C: (sets down the block) -> F: We need another of those flat ones there in the middle ... (pointing to the model, giving his daughter the block) It's this one - or is it this? (looking at the model) Yes, it is. Put it down there. -> C: (putting down the block) (Family 3, father and daughter).

In this group the parents asked the child to think of the solution, while still providing the correct answer quite soon afterwards. Although the guidance in the problem spots could be regarded as giving suggestions, many parents explained why the block chosen was not the right one, and some parents went through the model step by step.

Case 4

Mother and son (Family 7): The situation starts with the mother holding the first model in her hand. First of all, there is talk about matters pertaining to the test situation. Then the mother starts off with a 'look here' remark and a question. In the initial stages the mother gives direct inst-ructions to action, followed by the paradigm: 'Look here' and question -> child's answer. The mother starts the second construction with the aforementioned questioning style, but when she sees that the child is not making any progress, she puts out the first blocks herself and continues with her inst-ructions. Throughout the construction process, the mother points out in the diagram, where she is at the moment. The first model is dealt with from the start to finish before construction begins. After completion, the model and the result are compared. The mother encourages the child.

Extract 1.

M: (pointing to the diagram) Look, there are two real long
ones here. Where'd we ...? -> C: (taking the thin block) -> M:
Listen, I think they should be thicker than that one (pointing
to the thin block and diagram) Look, the thin ones go on top,
there. Which'd be the long, thick one? -> C: (taking a block)
A little thicker ...   -> M: Yeah, they'll do. -> C: (taking
another block) -> M: (pointing to the previous block) I think
that'd be them, d'you hear, the two bigger ones. -> C: (taking
the block) Yes.   -> M: Mmm ... (putting down the block) -> C:
(moving the block) -> M: (adjusting the block and pointing to
the diagram) Like this.   -> C: (looking) -> M: Then on top of
them ... (pointing to diagram) ... we need one.

Group 3. The parent directs the situation without sufficiently
taking into account the child's abilities/needs.   Guidance is
rigid. The responsibility for the construction still lies mainly
with the child.

In this group the most general mode of proceeding was admoni-
tion, the child being told what to do next, which was the right
block and where it was to be put. The child's task was to obey.

    M: Look, now it's like the other block there.   Then this one.
    (pointing to the model) -> C: (putting down the block) -> M:
    There, that's right.   Then one of those in that space (giving
    the girl a block). (Family 14, mother and daughter).

In the easier places, some of the parents proceeded using ques-
tions.   However, little time was given for consideration of the
answer, the parent already providing it.   Still, the questions
were often such that they already contained the answer.

    When difficulties were encountered, parents often pointed out
the error by comparing the construction to the model, and by
giving direct hints as to the solution, for instance by sugges-

ting or giving the child suitable blocks.   Parents often contri-
buted to the building themselves.   To correct wrong choices,
parents often said straight out 'no, not that one, what about
this one?', at the same time handing the child a suitable block.

F: See, those blocks at the ends there (pointing to the model)
-> C: (about to take the wrong blocks) -> F: Take these, these
are the ones.   (putting the blocks before the child) See, you
put them over there, like that (pointing to the model).   -> C:
(setting out the blocks) Here, you mean? -> F: Yes, that's
just it.   That one next (putting the block before the child).
(Family 30, father and daughter).

Not always did the child have time left to answer, before the
adult already provided the solution.   In some cases however, the
child did not submit to the role of obeyer, the result being a
certain amount of conflict.

Case 5

Mother and son (Family 45): The child has a difficult task
before him, the mother states that this is the first task to
be done.   She calls the model 'the loom'. The child talks to
her for a while about his own affairs, then asks for the first
blocks.   The mother shows him the right blocks.   The child
persists in choosing blocks that are too thin, the mother app-
roves and the construction is started, using the blocks the
son choses. The mother suggests the blocks to be used, points
out the places in the construction for each block, hands the
boy the blocks and puts some in herself.   Right in the middle
of construction, the boy unexpectedly demolishes the whole
structure and suggests they build as much as they are capable
of.   The mother persists in suggesting that they build accor-
ding to the given models and the child subsequently chooses
the easier model.   The child asks the mother for advice and
the mother gives him direct answers. She calls the final pro-
duct 'The pyramid'.

The more difficult model is started from the beginning with

the mother putting down the first blocks. The child wriggles about in its seat, joining his mother in the construction upon her asking him to. She points out the next few blocks to him from the model, and the child puts them in their places.

Extract 1. Relatively easy construction.
C: And then, what'll we put there? -> M: A third one there, the same as the others. -> C: (taking the block) Like this, you mean? (putting down the block) -> M: The same as these. Yes, but look, (pointing at the model) one, two, three. -> C: (taking the block out of the construction, putting a new one in its place) Oh, another one still? -> M: Yes. <-> C: (putting down a block) -> M: Two more, then. -> C: (looking at the model) -> M: (taking a block, pointing at the construction) On here, on top of these cracks (putting down a block).

Extract 2. First effort at a more difficult model.
M: What about these? (putting a block in the structure) -> C: (looking at the model) No! -> M: (pointing to the model) See, here, where you can see them at the edge. -> C: Yes. (taking a block away) How'll we put them? -> M: (putting down some new blocks) These, you mean? Does it have to be exactly the same? -> C: (putting down a new block) It must be a long one. -> M: Mmmm.. Then here it's just like this (pointing at the model, taking a block) squares like this.

Group 4. The parent directs the situation, for instance, by doing the building himself. The responsibility for the construction rests with the adult.

There were difficulties in this group in initiating co-operation between child and adult, the child expressing his doubts as to his abilities in building constructions with the help of models.

In several cases, the adults started to do the building themselves, instead of explaining to the child how they could cope with the task or instead of guiding the child in his building. Even in the cases where the child was involved in the construction, the parents gave them the appropriate blocks ready to be put into place, and actually told them where they should be put.

C: I don't know how to do it.   -> F: (setting up the blocks) Like this. Look, now there were three at the bottom, how many are there in the next layer? (pointing to the model).   -> C: Here, that goes here too (setting the block correctly) -> F: There's two of them there, that one's in the middle there, then that one (giving his son a block) -> C: Where? (taking the block) -> F: (taking the block somewhat forcibly from the child and putting it in the structure) There.   <-> C: Yes. -> F: There, and then, was there one like this? (offering the child a block) -> C: (about to take the block) <-> F: (putting the block in its place) That's the way.   (Family 31, father and son).

Case 6

Father and son (Family 8): The situation begins with the father holding the model in his hand and suggesting that they get on with it.   He puts the first block before the child, tells him to put away a block that he is holding but that does not belong to the task, takes the child's hand in his own and, together with the child, sets down the first block.   Then the father points to the model and tells him to get on with it. When the child just looks at the model, the father again tries to take hold of the child's hand, with no success. The father points to the model and gives more explanations in an exhortative manner.   Once he has got started, construction proceeds according to the father's instructions.   The father's hand is close by during the building process.   Again the father prevents the child from taking blocks (moves the child's hand away, takes blocks away etc.).   The father gives the child the

right blocks, shows him their right places, puts them there himself or corrects what the child has done.

Extract 1. More difficult model.
C: Hey, now I've got it! -> F: Well? -> C: Let's make a bridge, shall we? -> F: (holding the new model in his hand, pointing) Well, look, here's a bridge. First we put the blocks like this, then a long bridge on top of them. Shall we make one of these? -> C: Yeah!!! -> ... -> C: (putting the blocks before himself) -> F: Well, look now (removing the blocks) Now let's put them down, see, daddy will show you! (taking the block from the child's hand, putting the child's hand on the table) Put that there first ... (puts the block there himself) Ok. -> C: (about to take the block) <-> F: (moving the child's hand away, putting a block before the child) Then this other end like in this picture (pointing to the model), look, there was that other one, and this is where you put the other. -> C: (setting down the block) -> F: (Father's hand closely following, correcting) That's the way, still a little further away. -> C: He, he! -> F: Okay -> C: (about to take the block) <-> F: (preventing him) Then I'll show you, see, then you put ... you put this one, for example there. (giving him a block) -> C: (putting the block in place) -> F: Ok. (correcting) This way. -> C: Hee-hee-hee (about to take the block) -> F: No, let's take another one from here (taking a block from the child and giving him another) Let's take that one, shall we? -> C: (putting the block down) Yes. -> ... The father keeps the model in such a position that the child cannot properly see it.

Group 5. The tasks are not done, or they are done partially.
5a. Efforts are made by the parent to do the task or to make progress in it.

There are many kinds of pairs in this group. A common feature to all was the fact that a construction in accordance with the model was not achieved despite the parent's efforts. Several parents proposed the building of the model, tried to appeal to the child's imagination, built the model themselves or tried to get the child interested in the task by means of questions and comparisons of the construction to the model. Nevertheless most of the children built their own construction, which they would not abandon. In a few cases, wrong instructions from the adult got the child to turn to their own constructions.

(The child makes her own construction) -> F: Let's do this. -> C: No, I'm going to make a diving board. <-> F: ... daddy helps you (exhibiting the model) -> C: I'm going to make a diving board (setting up the blocks) -> F: (putting the blocks in accordance with the model) Look, these long blocks come first, don't they? -> C: (taking the blocks set up by the father and making a diving board from them). (Family 27, father and daughter).

In some instances the child was very involved with the model made with one parent, and was not willing to make any other. Even though the adult cajoled and tried to explain on the basis of the model what the model was supposed to be, the child would not give in. Many children experienced a decline in motivation for building the model.

Case 7

Mother and daughter (Family 2): Problems in doing the task, since the constructions made with the father are still fresh in the child's mind. The construction of both the first and the second models begin with the mother's comments 'I'm sure mummy won't understand this' and 'This must be a hard task'. In the case of the easier model, the mother attempts to direct the child by suggesting how the construction should be carried out. In the case of the more difficult model, building begins

in a cajoling tone of voice.

Extract 1.   More difficult model, mother having a cajoling
role.

M: Let's first put two long ones under that one there (poin-
ting to the picture).   -> C: (looking at he model, at the
blocks) -> M: Those might be right (pointing to the correct
blocks on the table).   -> C: (putting the blocks in their pla-
ces) -> M: That's it, and then here's another (puts a block
before the child) -> C: No, no, no, no! -> M: Ye-es.   Look,
these are long ones, twice as long as that one (pointing to
the diagram) -> C: (looking) -> M: And then on top of them,
like that (pointing to the diagram).   -> C: Now you don't
understand! (taking the longer blocks) -> M: Huh, I don't
understand, you say? You're going to take ...   Well. -> C:
(putting down the blocks) Like this.   -> M: Aha, I see.   And
these will go crosswise (giving the block to the child) -> C:
(taking a block, putting it into the construction) Then here.
-> M: Then on top of this, yes.   Would it be this? (offering
the child a block) -> C: (taking the block) -> M: Like this.
The model is right, but the blocks are in the same directions
as the previous model.   The final solution is a 'compromise
construction'.

5b.   The parent gives up on the task easily, or gives the child
no guidance.

This group differs from group 5a in that the adult does not
attempt to get the child to build according to the model, or, if
he does, then only at the beginning stages of the situation.   The
attempts to start on the construction comprise weak comments such
as 'Look shall we perhaps do this?'. The child is allowed his own
freedom of action in building.   In some cases the construction
dies due to lack of instruction.   The child needs concrete inst-

ructions, but when he does not get them, starts making models of
his own. In this group a part of the children actually want to
build according to their own wishes, and the parents allow this,
part of the children ask for help, but when help is not concrete
enough, the child's enthusiasm dies completely.

Case 8

Mother and son (Family 21): The situation begins with the
child making a construction of his own and the mother asking
what it would be. Then the mother suggests building according
to the model picture, but the child refuses. The mother sug-
gests that he look at the model picture, but the child is
still interested in other things, even to the point where he
gets off his chair and the mother has to entice him to sit at
the table, to answer the child's comments etc. The mother
tries to direct the child's attention to the task: 'Look,
let's make one of these, shall we?', 'Look, how could we make
one of these?', 'Look, what blocks do we need for this?'.
Apparently the child feels that the models are difficult, he
doesn't even try to acquaint himself with them. When the
mother tries to get him to build, she takes the model from the
table and holds it before him. She directs his attention to
the picture with 'look' suggestions, but does not approach the
model in a concrete fashion by pointing to it before the child
says that he can't do it. Then the mother shows the boy the
first blocks in the diagram without any explanations, saying
only 'look at this'.

 The mother talks a lot. In attempting to build the model,
the mother tries to present many approaches, one after the
other, e.g. suggestion - suggestion, question - question. She
does not pause for a sufficiently long time for the child to
answer. Sometimes the mother also answers her own questions.
The child is not interested in the task, instead, it is more
interested in the things around it. The child reacts to the
mother's 'look' admonitions, but to few others. The child

manages to divert the mother's attention from the task mostly
with questions about the things around them or with other com-
ments, sometimes also with motor activities (squirming in his
chair, getting up etc.).

Extract 1.   The longest episode in the attempts to follow the
model: M: Shall we make a house like this, shall we? Look at
the blocks we have here.   -> C: (looking) I don't understand.
-> M: Don't you? -> C: No.   -> M: (pointing to model) Look at
these here.   <-> C: (looking, taking a block) -> M: Yes, just
these.   -> C: I'll grow ... (starting his own construction) ->
M: What'll grow there? -> C: A click-clack town (the block
falls over). -> See, they don't stay upright.

The relationship between patterns of communication and parental
education, and the sex of the child

The Chi-method was used for those comparisons between groups when
the data required nonparametric methods. The differences between
groups of patterns in particular aspects of child communication
were analyzed with a one-way analysis of variance and Scheffe's
method was used for comparing group means a posteriori.

The patterns of communication can further be characterized in
terms of relationships with social background on one hand and
with the child's communication on the other hand.   In addition,
the enthusiasm for the task was examined as an intervening
variable.

The mother-child dyads and father-child dyads were separately
classified into patterns of communication. As shown in Table 1,
the distributions of fathers and mothers to the groups of pat-
terns were approximately similar. Mother and father of 13 fami-
lies (27%) were in the same group of communication (Cronbach alfa
= 0.53). Parental education was related to the grouping of mot-

her-child dyads (p < .01) with more mothers from the higher education (HE) group in Group 1 and no mother in Group 4 (Table 1.). A similar trend was also found for fathers, but the finding was not statistically significant. The results revealed that almost all the parent-child dyads which were identified to Group 1 were from the higher educational group. This finding indicates that the differences in communication are found within narrow bounds.

The results showed, instead, that the sex of the child was unrelated to the patterns.

Table 1. The distributions of mother-child and father-child dyads in patterns of communication.

Patterns of communication	The HE group		The LE group	
	Mother	Father	Mother	Father
Group 1	8	7	0	2
Group 2	5	6	8	6
Group 3	4	6	6	11
Group 4	0	1	4	2
Group 5	7	4	6	3

Group 1 = The child itself solves the problematic points and constructs the solutions.
Group 2 = Parent directing situation, child mainly obeying. Parent takes child's abilities/needs into account.
Group 3 = Parent directs the situation without sufficiently taking into account the child's needs/abilities. Guidance is rigid.
Group 4 = Parent directs the situation, for instance, by doing the building himself.
Group 5 = The tasks are not done, or they are done only partially.

Relationship between the patterns of communication and the child's communication

The results showed that there were no differences between children in their basic social skills of interaction nor the content of interactive exchanges initiated by the child (Tables 2 and 3). Only the means on measures of child communication with father showed the expected tendency that initiatives were more made in Group 1 and less in Groups 3 and 4, in which groups also nonverbal reactions were slightly more common. Demand-exchanges were more initiated in Group 4 and suggestion- and statement-exchanges, as expected, more in Group 1 than in other groups. Inspite of such trends in means it has to be emphasized that they were not statistically significant.

As an intervening variable the enthusiasm for the task was taken into consideration. The results showed that the patterns of communication were not related to the enthusiasm in mother-child dyads. For father-child dyads there appeared the effect of the group both at the beginning (p < .05) and at the end (p < .001) of the task. Group 5 differed from other groups showing less enthusiasm for model-building with blocks. This finding was not of central importance, because just in Group 5 there were the children who did not want to build in accordance with the given models. No significant differences were found between other pairs of groups.

DISCUSSION

This paper was aimed at identifying patterns of communication. Attention was paid to the behavior and utterances of parents and their children. Because the communication is a product of both interactive participants, the focus was on the dyads. The patterns were defined according to the alternative ways through

Table 2. Mean scores and standard deviations obtained by mother-child groups on measures of the child's basic social skills of interaction and child-initiated exchanges in communication during the problem-solving task.

Measures of communication	Group 1		Group 2		Group 3		Group 4		Group 5		F-value	p
	M	Sd	M	Sd	M	Sd	M	Sd	M	Sd		
Basic social skills of interaction												
- Child-initiated exchanges	11.50	3.25	9.77	6.00	11.20	7.63	13.00	4.55	7.46	4.56	1.23	n.s.
- Acknowledgements in child-initiated exchanges (%)	0.54	0.22	0.55	0.30	0.52	0.27	0.51	0.20	0.51	0.22	0.07	n.s.
- Nonverbal reactions (%)	0.25	0.17	0.33	0.11	0.43	0.24	0.22	0.14	0.27	0.24	1.57	n.s.
Exchanges in communication												
- Question-exchanges	3.13	2.59	3.23	3.03	4.60	5.50	2.00	2.16	1.46	2.18	1.31	n.s.
- Demand-exchanges	1.50	1.77	0.77	1.42	0.40	0.84	2.00	1.41	1.00	1.15	1.48	n.s.
- Suggestion-exchanges	1.13	1.25	1.23	1.74	1.00	1.25	2.75	1.50	0.77	1.01	1.67	n.s.
- Statement-exchanges	5.75	3.45	4.53	3.64	5.20	2.62	6.25	2.63	4.23	2.74	0.55	n.s.

Note:

Group 1 = The child itself solves the problematic points and constructs the solutions.

Group 2 = Parent directing situation, child mainly obeying. Parent takes child's abilities/needs into account.

Group 3 = The parent directs the situation without sufficiently taking into account the child's abilities/needs. Guidance is rigid.

Group 4 = The parent directs the situation, for instance, by doing the building himself.

Group 5 = The tasks are not done, or they are done only partially.

Table 3. Mean scores and standard deviations obtained by father-child groups on measures of the child's basic social skills of interaction and child-initiated exchanges in communication during the problem-solving task.

Measures of communication	Group 1 M	Sd	Group 2 M	Sd	Group 3 M	Sd	Group 4 M	Sd	Group 5 M	Sd	F-value	p
Basic social skills of interaction												
- Child-initiated exchanges	14.44	7.80	11.17	5.98	8.06	4.80	8.00	1.73	10.29	6.21	1.92	n.s.
- Acknowledgements in child-initiated ex- changes (%)	0.43	0.24	0.47	0.26	0.39	0.27	0.30	0.12	0.52	0.31	0.55	n.s.
- Nonverbal reactions (%)	0.33	0.25	0.44	0.12	0.40	0.20	0.40	0.34	0.22	0.24	1.45	n.s.
Exchanges in communication												
- Question-exchanges	3.78	2.86	4.33	3.26	3.00	3.10	2.67	3.06	1.43	1.62	1.22	n.s.
- Demand-exchanges	1.44	2.13	0.58	0.90	1.00	1.58	2.00	1.00	1.29	2.14	0.67	n.s.
- Suggestion-exchanges	2.67	2.29	2.08	1.38	1.18	1.47	1.67	0.58	1.14	1.07	1.74	n.s.
- Statement-exchanges	6.56	6.02	4.17	2.98	2.88	2.64	1.67	1.15	6.43	4.61	2.26	n.s.

Note:

Group 1 = The child itself solves the problematic points and constructs the solutions.

Group 2 = Parent directing situation, child mainly obeying. Parent takes child's abilities/needs into account.

Group 3 = The parent directs the situation without sufficiently taking into account the child's abilities/needs. Guidance is rigid

Group 4 = The parent directs the situation, for instance, by doing the building himself.

Group 5 = The tasks are not done, or they are done only partially.

which the parents tried to get the given task completed. Attention was paid among others to the content of exchanges in communication, and to the role of the child as a cooperative participant of interaction. The first rough grouping was made on the basis of the outcome, whether the parent-child dyad built according to a given model or not. The other four main groups were defined among those dyads which were working along instructions.

It is quite evident that there are as many stories possible as there are parent-child dyads in the data. Accordingly, there is wide variation in details within the above illustrated groups. Since it was observed that there existed a few aspects according to which some dyads differed more from each other while the others were quite similar, it was found possible to construct some kind of classification.

The groups in which the work proceeded towards task solution, differed from each other in the guidance given and in the child's contributions to the joint activity. In Group 1, the parents tried to stimulate the child to find solutions and to correct mistakes by asking the child questions and offering pieces of information. The child seemed to be regarded as an active participant. In the other groups, the cues were given more and more directly and concretely and the adult was observed to build more himself. Contemporarily the child was restricted to comply with the requested action and sometimes the adult seemed to ignore the abilities of the child. According to the verbal and nonverbal communication between the parent and the child the climate of interaction was felt differently.

As it was reported in the chapter on method, the order of the dyads and the task variations were randomized across families. In this way, the comparisons of parent-child groups are scientifically feasible. When the analysis is not conducted across individual dyads, attention needs to be paid to the fact that successive events may have an influence on the child. Some effects were observed in individual cases.

If the guidance of one parent in the first session showed a

discrepancy with the child's needs and abilities, or if the parent gave incorrect pieces of advice (e.g. unsuitable blocks) or the child was unsuccessful in his attempts to complete the task, the second session with the other parent might begin with difficulties. Children appeared to differ in their willigness to engage in interaction. There were also children who were fixed with the first models and could not agree with new ones or different ways to build. Certainly, getting familiar with the settings and learning the principles of model-building may have facilitated at least in a few cases the excecution of the second task.

Taken together, patterns of communication are not stable for adults or for children. Although it seems probable that there are stylistic differences between both adults and children in their preferred approach to this kind of task, differences in communication are as likely to emerge from the interaction between a particular pair of participants as they are due to the context. In addition to the context, even more occasional things have an influence on communication.

The sex of the child was unrelated to the patterns of communication. The results, instead, showed that every third parent-child dyad from the higher education group was identified to Group 1 on the basis of communication. Despite this tendency, the relationship between parental education and patterns of communication was statistically significant only for mother-child dyads. In accordance with earlier Finnish data (Rasku-Puttonen, 1983) these findings indicate that differences in communication are revealed within quite narrow bounds.

On the basis of earlier findings (e.g. Howe, 1981; Sigel, 1982, 1986) it was hypothesized that the different patterns of communication might appear in differences between children. The comparisons were made in measures of basic social skills of interaction and in measures of interactive exchanges. The differences were assumed to emerge between the two extreme groups : Group 1 and Group 4. In Group 5, in which the child did not want

to build the given model, there were children who made buildings on their own initiatives as children in Group 1, only the outcome was completely different. However, the results revealed no differences between groups of patterns on any measures of child communication.

Reasons may lie in the small size of the sample, in measures selected to represent child communication (basic social skills of interaction, interactive exchanges) and in a short extract (5 minutes) from one's interactional repertoires. On the other hand, the primary aim of this work was at identifying and describing the patterns of adult-child communication not individual characteristics or discrepancies. The focus in this work was on a single task, which was analyzed in greater detail.

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