Appendice 1: Children's observation

A. General action in the kindergarten:

1. Free play. (Happens inside, child can at least for some degree choose his/her play, with whom to play and how long.)
2. Eating. (Breakfast and lunch. As eating is categorized also the waiting for the food, the service of the food and other waiting during eating. If for example the children sing or look at calendar together, the action is categorized as 'eating'.)
3. Basic care. (Child is dressing or undressing, going to the toilet, washing
4. Outdoor play. (Often in the kindergarten yard. If adult is leading a game or activity, the category is instruction. If adult is guiding an excursion the category is instruction, although it can have moments of outdoor play in it.)
5. Direct Education. (Planned action by adult or action that the adult participates and guides by bringing an educational element to it, e.g. gymnastic exercises, drawing, teaching, instructive discussions, or practicing writing or counting skills)

B. Child's action:
1. Child acts according to the group, no additional behavior. (E.g. child eats at eating situation, child dresses at dressing situation, child exercises math at exercise situation, no additional behavior)
2. Child acts according to the group and does some additional behavior. (E.g. child eats at eating situation and discusses with other children, child dresses at dressing situation and talks with an adult)
3. Orientation. (E.g. the child walks around, observes others without participating or waits.)
4 Non-social play with toys or material. (E.g.playing with cars alone at the sand box, building a hut by her/himself.)
5. Toy & material play with others. (E.g. playing with cars together or side by side at the sand box, building a hut with others.)
6. Hanging about together. (E.g. discussing with others, walking around with others.)
7. Role play. (E.g. playing with Barbie, playing Spider Man.)
8. Rule play. (E.g. playing football or board games. If the rule play has an element of role play in it, e.g. in playing war, the action is categorized as role play.)
9. A presentation or performance. (E.g. a book, video, fairy tale, play.)
10. Work. (E.g. child helps at eating, independent educational tasks, cleaning.)
11. Forbidden action. (E.g. teasing, breaking or disturbing.)
12. Other action. (Action that does not fit in the above categories. Includes situations with some kind of waiting, often a lot of people, and some amount of confusion.)

C. The child changes (in) the environment A clear operationalization could not be formed! The classification had a lot of interpretation in it.

1. The child adapts to the situation and its conditions. (Child does not change her/his role, the rules, or quality of the action, e.g. child keeps on playing with cars with no new elements in the play.)
2. Child partakes in the development of the situation and its conditions. (Child changes his/her role, the rules or quality of the action, e.g. child asks a friend to join to play with the cars.)
3. The child defines the situation and its conditions. (Child adopts the environment to his/her schema, e.g. the child forces others to join in to play with cars.)
4. The child has no mutual context with others, child is separated from others. (No such behavior could be observed!)

D The object of attention
1. Non-social object. (E.g. toys, sand, cars, blocks, water.)
2. Adult. (E.g. the child follows the adult's narrative, discusses with the adult. If the child gave attention also for children in the situation, the situation was categorized as (5) 'whole situation'.)
3. A child. (Child's attention is focused on another child. There can be also toys etc. in the situation and he/she can also give attention to the non-social aspects of the situation.)
4. Several children.(Child's attention is focused on 2 or more children. There can be also toys etc. in the situation and he/she can also give attention to the non-social aspects of the situation.)
5. The whole situation. (The situation has so many elements, that one object of attention could not be defined. The attention can consist of children, adults, materials and different kinds of actions, usually a dynamic situation.)

E Child's nearest contact (if one can be found)
The child that was most involved in mutual interaction with the observed child. If there were several children, the closest contact depended on the amount of attention given to her/him. At the observation the child's name was written down, at the data input it was replaced by the child's number. In the observation data the nearest contacts data was merged according to the number. In this way it was possible to get diverse information about child's social orientation.

F The distance between the child and the nearest adult in meters.

G. The nearest adult's action
1. Arranges and engineers things, discusses with another adult (no child contact).
2. Deals with the whole situation, can not separate elements of the dynamic situation.
3. Observes children.
4. Adopts to child's/children's action.
5. Changes the situation together with the child.
6. Dominates (adapts) the children.

H. Does the nearest adult orientate herself to the observed child?
1. No (the nearest adult does not look at the observed child, the child is not the main focus of adult's attention)
2. Yes (the nearest adult looks at the observed child, the child is the main focus of adult's attention)

Appendice 2: Children's interview questions:

1. Let's think that somebody else is having the toy you want. What do you do?
2. What do you do when you are playing and somebody comes to disturb you and interrupts your play?
3. Let's think that you are playing with someone and your friend wants to change play. What do you do?
4. What if a friend will not play with you? What do you do?
5. Let us think about a situation that somebody comes to tease you. What do you do?
6. When there comes a situation that adult comes to stop your play, what do you do then?
7. Lets think that you are playing with a friend and you would like to change play but your friend does not. What do you do?
8. What if in kindergarten an adult will not play with you. What do you do?
9. Let us think that you are playing a game with somebody and the other does not follow rules. What do you do then?
10. What if you are doing an important work and somebody comes to disturb you, what do you do then?
11. Think of a situation that your work is ruined and you fail. What do you do then?
12. What if somebody takes your toy?
13. Think that in kindergarten adult gets annoyed at you and scolds you. What do you do then?
14. From a kindergarten you may not go home alone in the middle of the day, but you would like to go home already. What do you do then?
15. What if you will be left alone among others in kindergarten. What do you do?

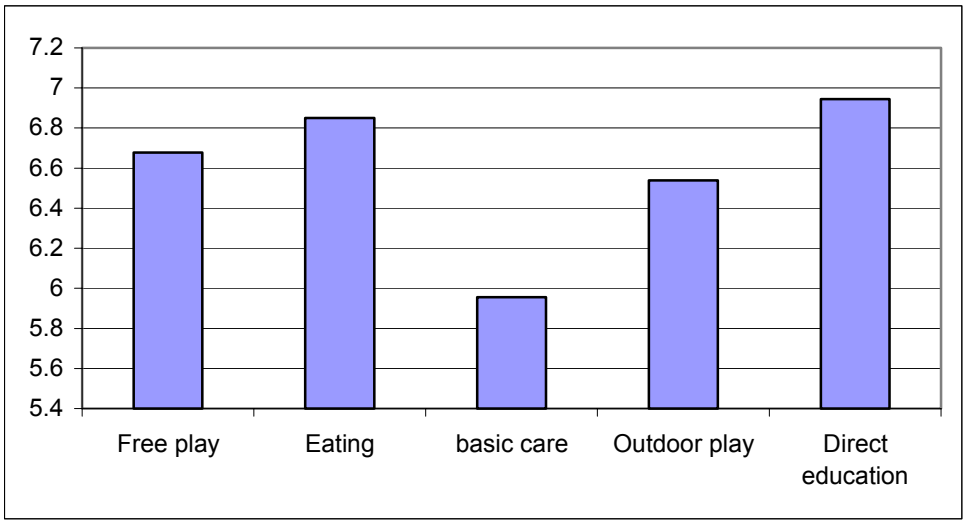

Figure 1How the children's change strategies affect the kindergarten settings?

The figure shows the average amount of change strategies in different kindergarten settings (see appendice 1). From the figure it can be seen that children who have been observed to be doing direct educational activities have the highest average in change strategies (M=6.94, Std. dev.=2.68) and children who are observed in basic care have the lowest average in change strategies (M=5.96, Std. dev.=2.83).. This difference is also statistically significant when tested with GLM univariate procedure (df=4, F=3.286, p=.011). There are more children in directly educational activities than in basic care activities. If the children had more change strategies generally it would probably mean more directly educational activities in the group. But when children's gender and age are put as covariates the difference is no more statistically significant (df=4, F=1.77, p=.132). Thus it can not be stated that children's change strategies affect the general amount of different kindergarten settings. It is easy to understand: As children grow older the amount of educational activities increases as the children can concentrate for longer times and their academic capabilities increase. Young children spend more time in basic care such as cleaning or dressing. When children are older the direct educational activities increase and basic care activities decrease. Thus it can be said that children with change

strategies spend more time with direct educational settings but it is related probably more with children's development than their way of perceiving change.

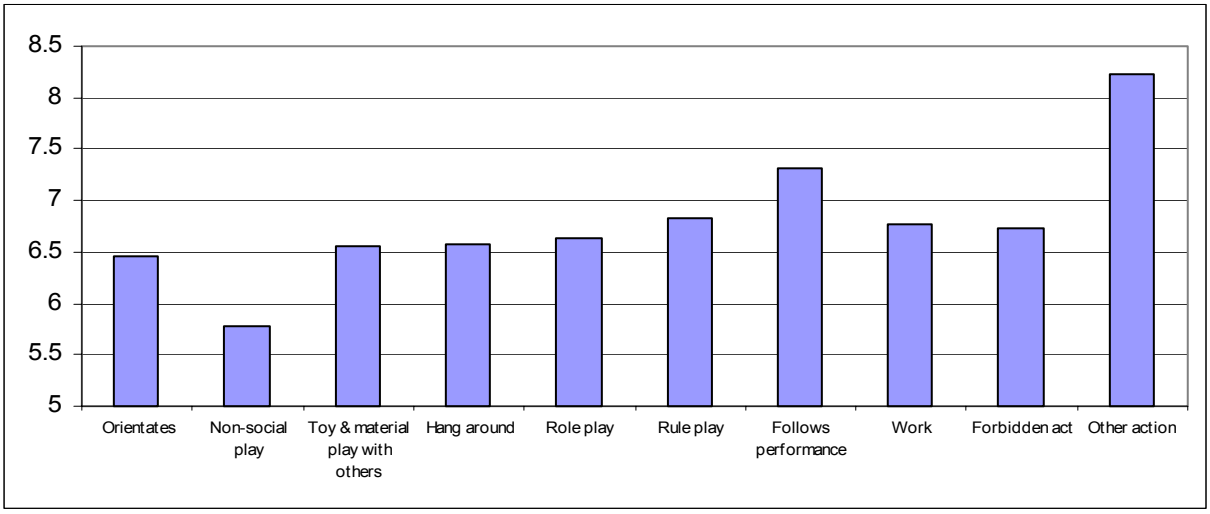

Figure 2 How the children's change strategies affect the children's actions?

In figure 2 the distribution between different classes of children's actions can be seen (see appendice 2). The risk that the found differences between classes are accidental is .026 (df=9, F=.026). Most striking are the differences between classes 'other action' (n=36 observations) and 'non-social play' (n=46 observations), significance is .001 (df=1, F=11.881). Children's actions that were classified as other action means that these children were doing something that could not be classified beforehand. In non-social play children usually play with toys, sand or other material. It can be said that children with more change strategies are more often found doing something that could not be predicted of could not be predefined and less frequently found in non-social activities. But again when age and gender are used as covariates, the difference is no more significant (df=9, F=1.549, p=.129). Again it seems that the found differences in the amount of different activities are more due to children's development, not their way of seeing change per se, found significance is .000 (df=1, F=14.147). Children's development seems to be related to more unusual, undefined and changing action.

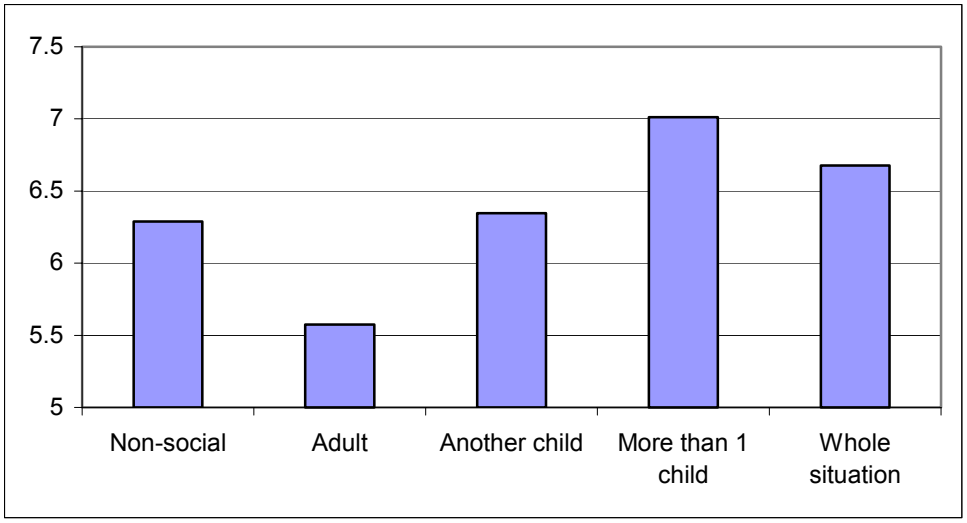

Figure 3 How the children's change strategies affect their object of attention

In the observation children's object of attention was put on record. If the attention was towards many things, the object of child's attention at the exact two minute limit was recorded. If the object of the child's attention was still not clear, it was classified as 'whole situation'. The found differences in the amount of change strategies are statistically significant (df=4, F=4.338, p= .002). The children's object of attention varies according to the amount of change strategies. The amount of change strategies is bigger when the child spends more time observing other children and smaller when the child pays attention to a adult (Tukey's post hoc significance .013) or just one child (Tukey's post hoc significance .042). It can be said that children who pay attention to several people has more change strategies than children who orientate themselves to only one people. Change strategies are related to orientation towards other children and not adult or one child. This difference holds significance when contrasted with age and gender (df=4, F=3.037, p=.017). Now the difference can not be explained by development through years only. Change strategies are found more often among three or more children. Because the change strategies are kept constant all through observed situations, the amount of change strategies can not be the cause of situational factors. It must be the other way around. Somehow children's observed change strategies direct them to situations with other children. With other children present the action is more versatile and has more possibilities to develop. In a group of children more change strategies is seen than with adults.

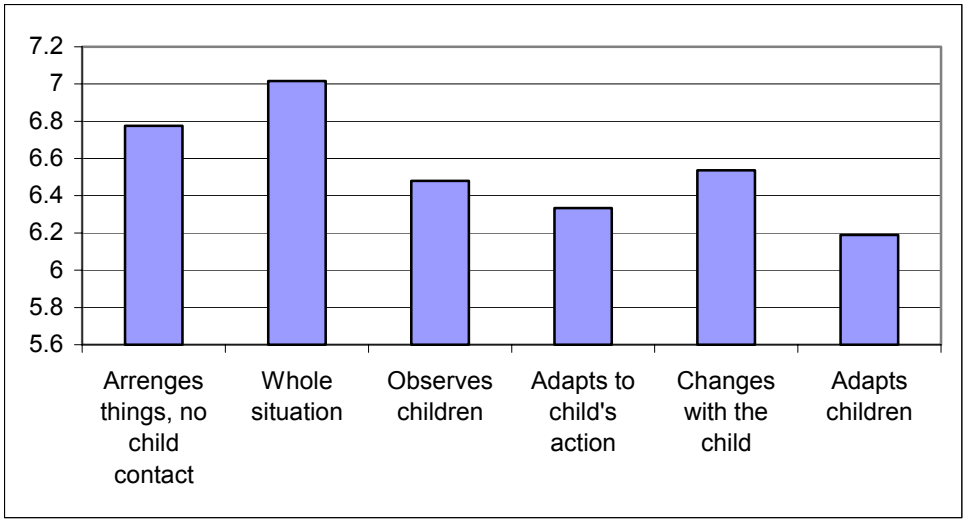

Figure 4 How the children's change strategies affect adults' actions

In the observation one variable was the nearest adults action which was put on record along with kindergarten settings and child's actions. The figure shows that the average in the amount of children's change answers varies when the nearest adult does different things. The difference is statistically significant (df=5, F=2.499, p=.029). When age and gender are used as covariates, the significance gets even stronger (df=5, F=4.677, p=.000) The biggest average in children's change strategies was when adult's action was categorized as acting in 'whole situation' (n=355, M=7.02, Std.dev.=2.77), which means that in the observation it was not possible to separate different elements of action. The adult was acting in a diverse and dynamic system which often was in the state of evolution and the action just could not be defined yet. This means that children with a lot of change strategies are found in situations were the adult acts in dynamic and versatile way. This must be because the children orientate towards dynamic situation or because the children cause the adults to act that way. The smallest average in children's change strategies was in situations where adult was 'adapting children' (n=132, M=6.19, Std.dev=2.73), which means that adult makes children act according to her own schemas, adult dominates a child or children. This means that adult's dominating behavior is not the only reason for children not seeing possibilities of change in different situations. When an adult is dominating the children, it happens most often with children who have less changing strategies. In a post hoc test (Tukey) the difference between the average of

change strategies for the classes ‘whole situation’ and ‘adult adapts children’ was statistically significant (p=.033).

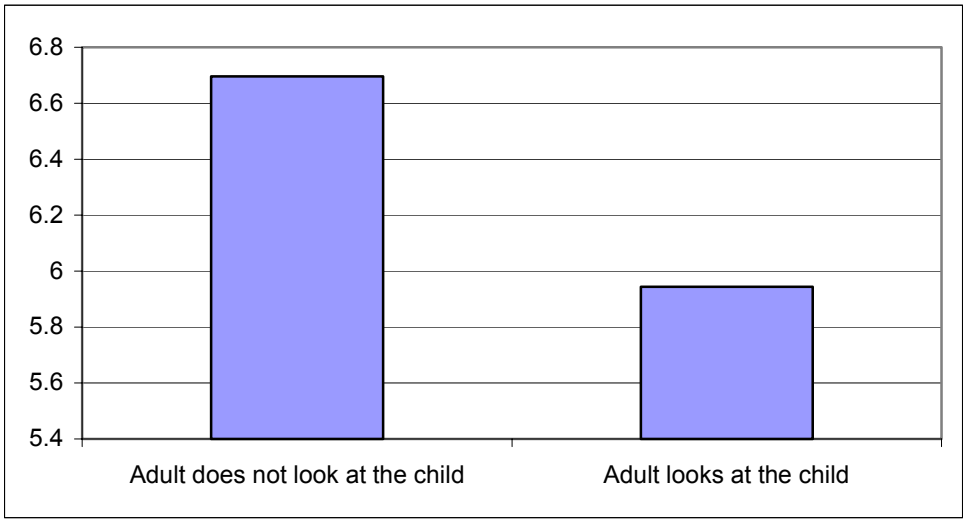

Figure 5 How the children’s change strategies affects the adults’ attention to the child

In the observation one observed variable was if the nearest adult was looking at the observed child or not. Most of the time (n=1463) the adult was not looking at the child. Only in 81 observations the observed child was the adult’s main focus of attention. Those children’s that the adult looked, the average amount of change strategies was 6.70 and those that the adult did not concentrate on, the average amount of change strategies was 5.94. The difference is statistically significant (df=1, F=5.189, p=.023). The amount of children’s change strategies was not a direct cause of adult’s attention because the amount of the children’s change strategies was kept constant across situations. Adult’s attention to the child and child’s small amount of change strategies seems to attract each other. However when you contrast the difference with children’s age, the difference is no more statistically significant (df=1, F=2.790, p=.095). Gender has no effect on the difference. Amount of change strategies seems to be related with children’s age. It is understandable that adults look after younger children more. The difference in the amount of change strategies seems to be a developmental thing, it’s personal value is not clear.