What keeps play alive?

A Dynamic Systems approach to playing interactions of young newcomer children in Sweden

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Abstract

The study is a theoretically driven research project with the intention to apply the Dynamic Systems (DS) approach to play in relation to the time of transition of newcomer children to Swedish Early Childhood Education and Care (ECEC). The aim of the study is first to contribute to knowledge about how play emerges and how to understand its dynamics, and second to explore the possibilities of the DS approach in connection to empirical investigations in the field of ECEC. The research questions include following: What are the theoretical and methodological implications of the DS approach to play among newcomer children? How do newcomer children experience playing interactions during their transition to Swedish ECEC? Which play patterns maintain the playing interactions in each new situation for newcomer children during their transition?

An explicit tool for analyzing the newcomer children’s interviews is developed in order to get closer to children’s experiences and to decrease possible adults'/researcher's/cultural influence on children. In addition, a specific soft GridWare (Lamey et al., 2004), developed on the principles and concepts of dynamic systems ideas, is used for exploding the changes and development of playing interactions among newcomer children.

The DS approach to play among newcomer children demonstrates that playing activities of newcomer children is an embodied, flexible and self-organizing phenomenon, functioning in response to multiple contexts, which can include both individual, social and material elements. The DS approach also shows a possible way to research dynamics of such a complex phenomenon. Newcomer children communicated what was important for their playing interactions “from inside” of a play, while observations added few vital patterns to it. Thus, the dynamic system of playing interactions among newcomers got its’ shape from relational, embodiment, activities and locational categories (REAL) including multiple patterns within and between each of the category. Emotional category appeared to be a pattern, which both triggers the dynamics and change of play as well as remains the main outcome of it.

Keywords: Dynamic Systems, play, newcomers, immigrants, early childhood

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To Joshua and Elena
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Falun, 15th of November, 2010
CHAPTER 1
Introduction

This research project seeks to introduce educational researchers and practitioners to the Dynamic Systems approach, a novel perspective that is applied to newcomer children’s playing interactions to continue the reconceptualization of play in Early Childhood Education and Care. The choice to look at newcomers’ play is not an empirically driven choice, but a theoretical one, though both theory and empirics coexist and inform each other in the project. The study of playing interactions particularly among the group of newcomer children becomes vital for Early Childhood Education and Care, as play firstly has a strong potential to be a supportive means for developing newcomer children’s well-being; besides play has the potential to help many of them during their transition and integration into the Swedish educational system. Newcomer children are not seen as a stigmatized group, nor is their transition into Swedish Early Childhood Education and Care seen as a problem. On the other hand, transition characterizes a very dynamic period in children’s lifespan and particularly the example of newcomers sharpens the very idea of transition between nations, cultures, institutions, languages and identities so newcomer children and their playing activities represent a vibrant group to explore and to make a contribution to the study of children’s play.

It is quite popular to describe various theoretical perspectives applied to empirical data with the help of the metaphor of lenses – concepts from theory or engagement of theory serve as a big help in “lensification”. However, as Allan’s critique points out “[…] the limited use made of the theories themselves” makes those “lenses in many cases serving as little more than a gloss” (2014, 324). This project tends to see its empirics not with just a gloss from theory, but with a profound interrelation between both theory and empirics in attempt to understand the complex and diverse phenomena under study which are newcomer children’s playing interactions.

As Rudesman and Newton (1992, 5) notice, the entry point to the research is usually the first stage of “empirical observation” – a selection of a topic which is based on interests, values, assumptions, goals and pre-understandings of the researcher. Apart from a strong theoretical research interest, other components in the selection of the study topic strongly link to my reflections on previous professional experience in the field of Early Childhood Education and Care.
Being interested in play, I have noticed how different the pedagogy based on play can be within Early Childhood Education and Care. The examples come from my Eurasia-Asia-Europe teaching experience\(^1\) and from observations of children during the process of their learning. In Russia, where play-based pedagogy has started to be actively used in teaching foreign languages, young learners enjoyed the play-based approach, as it was a clear opposition to 'work' or their ordinary lessons with instructions from a teacher. Play-based pedagogical approaches have gained popularity among foreign language teachers, methodology specialists and parents, so practicing these approaches is not difficult for a teacher due to big support from all participants of educational process.

In China, I experienced the tendency of syncretism in pedagogical practice: the popular Western idea of learning through play was rather alien one in terms of traditional philosophy (Confucianism)\(^2\); yet the pedagogy of play has gained more and more popularity among certain groups of teachers and parents.\(^3\) However, in some preschools learning was still seen as very distinct from play which often met parents’ resistance. So parallel to play-based pedagogy, I had some obligations to support the very traditional instructional learning for children. One should strictly follow the teaching plan and the teacher’s work included writing various weekly reports on how the instructions took place, which learning results might be achieved and what the next step towards reaching the particularly prescribed learning goals would be. Li’s research on young children’s perspectives on play in Chinese kindergartens in 1995 (cited in Rao and Li, 2009) demonstrated that a majority of the five-six years old children did preferred the group lessons to play. According to children, learning was connected to new skills and knowledge in opposition to just free play – which might be influenced by educationalists and parents who by that time were not so much inspired by Regulations on Kindergarten Education and Practice which came in force in 1989. The Regulations articulated that “integrated learning [including the one through play] should replace subject-segregated teaching” (Wong and Pang cited in Rao and Li, 2009). A decade after the Li’s study, new research (Liu, Pan, and Sun, 2005) revealed the increase popularity of play among children who did prefer play to group lessons. My observation was that despite of a particular type of pedagogy being

\(^1\) I first started as a foreign language teacher in Siberia, Russia in the sphere of non-formal education for children of 6 years old (equivalent to preschool class in Sweden). I continued teaching in Liaoning, China where I had been working with preschool children of 4-6 years old within formal education. Later on, I spent some time as a play worker on the Isle of White, the UK, being involved with an educational charity organization that had several projects for children of different ages including pre-schoolers within both formal and non-formal education.

\(^2\) “the traditional idea of obeying the teacher without arguing, and Confucian view that learning is beneficial to human development, but play is not” (Rao and Li, 2009, 114).

\(^3\) For example, Li (2001) explores the effects of traditional views of parents in a Canadian context. One can also find an interesting analysis of the influences over views on play in Bai (2005) who analyses traditional Chinese perception of play and education for children.
applied, be it play-pedagogy or subject teaching, the little Confucian followers enjoyed playing no less than their British peers in the UK did where play was officially recognized and supported within the educational system without resistance coming from a socio-cultural context. It was fascinating to experience that some children in the UK were refusing to play as a way of protesting against educators' play-to-learn principles. The children often expressed their wish for different kinds of un instructed play and claimed that they wanted to play only their own games without adults’ participation, instruction, or interruption.

All above examples, demonstrating different situations united by play, deepened my research interest on children's play in connection with the different background of young players. Keeping in mind that educational and cultural settings affect children’s perception of play and the very way of playing, it became interesting to explore what happens to their play when children become a part of transnational migration, especially when children migrate from the global South to the industrialized North. Such a divide is used to underline not a geographical position, but differences in socio-economic and what is even more important political conditions among various countries. As Prout (2005, 18) noticed, this language of binary opposition (South-North) cannot capture the real diversity despite that it “dramatically demonstrates the inequality of the situation” being based on the international division of labour. I have used this divide nevertheless to indicate a significant change of socio-cultural, political, economic and educational environments for young migrating children. Besides, socio-economic and cultural differences lead to different visions and practices of childhoods in the South and in the North.

The roles of children and their hierarchical place in a society varies from one place to another. For instance, Argenti (2001, 89) using a greeting riddle illustrates an example of what can be considered as a “subordinate and presocialized” status of a child in Oku society:

> When greeting a child, the teasing adult adds to the usual 'Are you strong?' the rhetorical question 'Then what did you catch?' (i.e. while hunting in the forest like the 'strong' hunter). The only correct answer to this question is 'grasshopper', a delicacy which children catch and fry for their parents. The

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4 Gaskins, Haight and Lancy’s (2007) ethnographic records indicated that from cultural perspectives of various societies children’s play can be cultivated, accepted or curtailed by adults.

5 The way to look at those differences could vary. For instance, in Luhmann’s account (1997) there is only one society existing at a global level; there are no distinctions of spatial or geographical boundaries but there is yet a recognition of the importance of regional differences. The explanations of such differences should not however be connected to an introduction of them as “givens, that is, as independent variables”, but one needs to start “with assumption of a world society and then investigate, how and why this society tends to maintain or even increase regional inequalities”. Chapter 4 has more explanations of the system theory which stands aside from many other sociological theories and offers a unique view on society and the ways we can theorize about it.
'mighty hunter' is thus only able to catch a grasshopper, and thereby to be a good, servile son or daughter (Argenti (2001, 79)

What happens to a grasshopper hunter who moves to a new place where a society sees and treats her as an already strong hunter because of the different role and place of a child in this society, the strong hunter who gets different additional rights while still having the status of a child, including the right to play and to education? This comparison is used not to claim that many newcomer children have never had or used their rights before coming to the North, but to underline that the concepts of what it is to be a child and what is play attributed to a child can be seen and perceived differently in the South and in the North. As Gaskins (2014, 31) notices “[a]lthough play has often been assumed to be the universal primary way in which children engage in the world outside of formal schooling, this has not been the case across centuries and cross the globe”.

Approaching newcomer children and their play could be done in a dual way: from the viewpoint of educators (based on their own values and identity) or from a viewpoint of a child (Han and Thomas, 2010). Sommer et al. (2010) describe these views as a child perspective and children’s perspective respectively. The child perspective is defined as directing “adults’ attention towards an understanding of children’s perceptions, experiences, and actions in the world” while a children’s perspective differs in representing “children’s experiences, perceptions, and understanding in their life world” (Sommer et al., 2010). The latter (children’s perspective) is prioritized in this project.

Colliver and Fleer (2016, 1561) pinpoint an important issue in connection to research on young children’s perspectives – some of the existing research of children’s perspectives does not mention of “what children themselves reported” or it does not include direct quotations of “what the children said, so little insights into the children’s perspectives could be determined”. It is often, Colliver and Fleer (Ibid) say, that children’s perspectives and voices are captured by adults’ subjectivisation. One of the ways to challenge this issue is by re-theorizing key concepts of play, learning and perspectives. The authors present the results of their study by providing children’s comments, noticing that incomprehension or opposite comprehension of these comments, and thus their influence on the results might lie in the theoretical approach which is in use for analyzing data obtained from young children.

This brings us back to the question of the use of theory that affects the pre-understanding of the project. Would the application of an interdisciplinary theoretical approach such as a Dynamic Systems approach help in re-theorizing play in such a way that it becomes possible to demonstrate alternative visions and dimensions of a complex and diverse phenomenon? Moreover, would this new-for-the-field theoretical frame have enough space left for children’s perspectives to find their ways out of adultist assumptions (Colliver and Fleer, Ibid). Considering that the participants of the project are newcomers,
how would the Dynamic Systems approach be able to add to research with this group of children?

The idea to start with a theory at the time when, as Beach and Bagley (2012) mentioned, the theory reduction from teacher education has become a global phenomenon and teaching had been re-vocationalised or re-traditionalised might sound as an idea to move off from the mainstream. The latter largely supports “what works” oriented research at the governmental level or else frequently concentrates on practitioners’ views about “professional knowledge, skills, needs and practices” (Beach and Bagley, 2012, 295). There is less space left for theoretical enquiry that might not have quick solutions either for governments, or for practitioners; but rather it challenges predominant ways of thinking by demonstrating different ontological and epistemological visions of phenomena under study.

Following Berstein’s idea (1999) of two forms of discourse in relation to formal higher professional education – horizontal and vertical – the choice to use a new theoretical perspective belongs to the vertical form, which is a scientific “know-why” discourse in contrast to the horizontal form, oriented towards “immediate practical goals” or practitioners’ “know-how” discourse (Beach and Bagley, 2012, 292). Both discourses are useful and valid; besides “professional action is never only vertical or horizontal and it is always thoughtful and reflective” (Ibid.) Nevertheless, different knowledge structures form the basis of these two discourses.

A horizontal discourse concentrates on common-sense knowledge of daily practices; most likely “it is oral, local, context dependent and specific, tacit and contradictory across but not within contexts” (Ibid). A vertical discourse is more systematically formed knowledge structure, providing “a grammar and robust conceptual system (syntax) that can be used by teachers and student teachers to help them describe, model and theorize from empirical situation” (Beach and Bagley, 2012, 293). Researchers and academics are greatly involved in the production of this form of discourse; the latter as Beach and Bagley (2012) and Allan (2014) have demonstrated disappears from professional education due to political and economic issues. There are several consequences of such a disappearance, including the decreasing capacity of new teachers to think critically, understand global processes and their effects on local ones, as well as recognize demands of equity.

The project does not aim to challenge a present situation with a vertical discourse as such; by examining a new perspective for the description of and theorization from empirical material, it rather contributes to maintaining this discourse for the research community, educational specialists and interested readers.

Driven by the main research interests described above, theoretical (application of a Dynamic Systems approach), methodological (children’s perspectives) and professional (newcomer children’s play), the project took place at
the time of big contextual changes in society (be it a global one in Luhmannian terms or a variety of differently constructed ones).

**Background**

This research project started in Sweden in the autumn of 2012 with data collection taking place in the autumn of 2015. During this period, the work on the project followed ordinary procedures: theoretical and methodological frames were shaped together with the establishment of a research design and the process of ethical approval was completed. However, the context in which the development of the project took place came through an extraordinary change. The year 2015 saw a big immigration wave that led to what the Swedish Migration Agency called the “historical autumn” (Migrationverket, 2016). Immigration to Sweden reached its maximum numbers during the modern history of the state. Institutions including educational ones at different levels, be it state or municipal, faced severe pressure to adjust or develop their regulations and practices to host asylum seekers and refugees of various ages. As Arndt (2015, 1378) puts it especially for Early Childhood Education and Care:

> In the wider realm of early childhood education, struggling to conform to a landscape determined by universalized benchmarks and indicators of quality, expected outcomes and commercialization, the uncertainty and multiplicity evoked by this [the European refugee] crisis can be expected to exacerbate existing tensions

The Swedish Government emphasizes the importance of strengthening the quality of education for children who come to Sweden and who cannot speak the Swedish language. Preschool as the only integrated institution for care, health and education of children is thus not only the first place to begin the educational path with, but it is often the very first institution in society for children and their parents to get in close mutual contact with Sweden (Regeringen, 2017: U2017/00300/S).

The explanation of the concept of quality or the problems in connection to it are beyond the scope of the referred document. So, one can assume that quality, which the document talks about, is based on quite general national and international standards, defined by experts, which further can be measured to evaluate the performance of early childhood institutions (Dahlberg, Moss and Pence 2007, 97-99). In Sweden, such an institution is the above mentioned preschool (förskola). It is now the only institutionalized form of Swedish early childhood education, health and care (Lenz Taguchi and Munkhammar, 2003); it became integrated into the school system in 1998, the year when preschool got its first state curriculum (Utbildningsdepartementet, 1998).
Both the first state curriculum and the reviewed version of it (presented to the government in March 2018) underline the importance of play for children’s development, learning and well-being, but the latest reviewed version has a new rubric dedicated to this.

Swedish preschool is an integrated form of school and care which all children of the age from one to five can attend and until autumn 2018 children could stay there up to the age of six in case they did not join the pre-school class in compulsory school. However, since autumn 2018, preschool class has become a form of compulsory education, meaning that preschool’s Educare model will only include children up to five years old.

Dahlberg and Moss emphasize that the success of the Swedish model of early childhood education and its openness for new thinking and experiments rest on three strong components (2007, xii):

A decentralization of responsibility to both local authorities and individual preschools, epitomized by a preschool curriculum […]

[An] emphasis on democracy which forms, the curriculum says, “the foundation of the preschool” (Ministry of Education and Science, 1998:6). Democracy is a fundamental value in Swedish early childhood education, and this matters because democracy recognizes, values and enact pluralism, the idea that there are always alternatives, differing perspectives, other possibilities – and hence contestations to be had and choices to be made […]

A workforce of well-educated preschool teachers.

The latter embraces preschool teachers (förskollärare) and children’s carers (barnskötare) who differ in their level of education, which is university level for teachers and upper secondary school level for carers. In this work, a term language assistants is used for the members of staff working in the researched unit since some of them did have upper secondary level courses taken in Sweden, or alternatively they were hired particularly for helping to provide language support to newcomer children.

It is quite early to talk about how the strong components of the Swedish model of early childhood education has helped to overcome the immigration crisis of 2015 or how this crisis affected the model, but it is clear that the situation in early childhood education did get more complex based on the recent historical events of the year 2015.

Table 1 (see next page) displays the increasing flow of immigration during the year 2015. As shown, more then 70 000 children arrived in Sweden, including unaccompanied minors defined as “a person under the age of 18 who has come to Sweden without his or her parents or other legal custodial parent” (Migrationsverket, 2016).

We cannot identify the number of children of a preschool age out of this statistical general chart; however, a report from the municipality of Värmland for instance talks about up to 30% newcomer preschoolers being enrolled in some
of Värmland’s Early Childhood Education and Care institutions in November 2015 (Region Värmland, 2017).

While revealing the enrolment numbers in educational institutions of different levels at the municipality, the mentioned report states precisely that it includes both asylum seeker children and newly arrived children. There is a distinction between these categories based on the legal status received from the Swedish Migration Agency: asylum seekers are those who applied for asylum and wait for the decision to be made, while newly arrived are those who have been already granted permission to stay in the country (Ibid).

For the first category (asylum seekers), the decision might be negative and if after an appeal process it is still negative, then a person should leave the country (Migrationsverket, 2017). Those children who did not leave the country after not being granted asylum are defined as hiding children. This “status” can be obtained not only when the personal application of a child for asylum is denied, but also when parents of a child with whom she was a co-applicant were refused asylum and decided to “go under ground”. Thus, the “hiding children” category can include children of various ages – from early years to teenagers.

Table 1. Immigration flow to Sweden in 2015. Source: Swedish Migration Agency

<table>
<thead>
<tr>
<th>Year-month</th>
<th>Number</th>
<th>Of which male</th>
<th>Of which female</th>
<th>Of which children (unaccompanied minors incl.)</th>
<th>Of which unaccompanied minors</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015-01</td>
<td>4896</td>
<td>3319</td>
<td>1577</td>
<td>1483</td>
<td>543</td>
</tr>
<tr>
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As indicated in the above mentioned report (Region Värmland, 2017) and as Nilsson and Bunar (2016, 403) also noticed, “[m]igrant children’s positioning in educational system is based on this legal categorization [allotted by Migration Agency] and regulated in school legislation”. Nilsson and Bunar (2016,
(2016, 403) include “hiding children” in the undocumented children group, and then write about children from this group having “the right to attend school at all levels – preschool, elementary, and upper-secondary – according to the same conditions as native-born children, except that elementary school is not compulsory for undocumented children”. Indeed, the Swedish state, being concerned about children’s rights in general and having ratified the United Nations Convention on the Rights of the Child in particular does provide obligatory education to children despite their migration status. Asylum-seeking children of primary school age got their rights to education since autumn 1993 (SKOLFS 1993:21) and “hiding children” have had their rights to compulsory education since 1 July 2013 (Regeringen, 2012/13:UbU12). However, a claim about the child’s right to attend school at all levels is not so accurate when it comes to preschool education since the “hiding children” category in particular does not have the right to it according to the Swedish education act (2010:800). This once again connects to the legal

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6 The Swedish Education Act’s definition of newly arrived pupils (2010:800) is even broader. It does not focus on language skills or migration status but just indicates that someone newly arrived is: a) a pupil who has been living abroad, but b) is now living in Sweden, and c) who started the academic year later than in the autumn of the year when this pupil turns seven years old. The pupil is newly arrived during the first four years from when she starts education in Sweden.

7 The UN Convention on the Rights of a Child (CRC) itself has not been integrated as a legislative document in Sweden’s law system, but instead the legislation was interpreted in accordance with CRC (Andersson et al., 2017, 49). In March 2018, the Government adopted a bill to make the UN CRC part of the Child Swedish Law (the act entered into force on January 1, 2020). Incorporation of CRC into a Swedish law means that legal practitioners will have clearer obligations to consider children’s rights in decision-making processes when it concerns children. As Lena Hallengren, Minister for Children, the Elderly and Gender Equality in 2018 said this was for “[c]larifying the role of the child as a legal entity with their own specific rights. This means that children will be in greater focus in situations that apply to them” (Regeringen, 2018)
status being allotted by the Migration Agency that differentiates between “hiding children” (whose asylum application has been rejected), and undocumented ones (crossed the border illegally or overstayed a temporary visa).

Defining general terms and concepts

The term newcomers in this work indicates children arriving from other foreign countries to Sweden for various reasons such as being members of asylum seekers’ families or for a family reunion with relatives previously granted permission to stay in Sweden. These children are newly arrived in a common sense but do not necessarily fall under the category of “newly arrived” as defined by the Swedish Education Act (2010:800) since the definition does not cover young children before they start compulsory education.

There are some ethical considerations concerning the challenges of studying minority groups as seen from a constructivist perspective. As Pachini-Ketchabaw (2014, 70) critically notices about anti-bias and multiculturalism approaches in Early Childhood Education, they are initially introduced to “preserve the integrity of diverse cultures” but often tend to see children from a universal cultural view. This view then erases “complexity and heterogeneity within, across, and among children, creating “others” through categories such as “immigrant”, “refugee”, “newcomers”, and “indigenous” and pathologizing these children and families through vulnerability discourse”. So these constructions of others are seen as “vulnerable” and “at risk” when compared to the civilized, superior, white Euro-American citizen”. This vision is based on the idea of children’s identities as fixed and natural, but not “active, productive, ongoing, and complex” (Ibid). This project does not see newcomer children as a stigmatized group; rather, it is interested in seeing the participants as active playing individuals, but not in opposition to or comparison with a normalized universal child.

The concept of transition (particularly in the educational field) is associated with schooling and might include early institutional transitions to preschool, from pre-school to school (preschool class), or in between grades. However, according to Vogler et al. (2008, 45), a wider context including cultural, social, and personal transitions should enrich research. The definition given by Vogler et al. (Ibid,1) describes the changes occurring precisely in the life of newcomer children: the transition links to not only pre-schooling, the very start of preschool or the change of homeland preschool system to the

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8 Before autumn 2018, those children who start preschool class have not being covered by this definition either (Skolverket, 2016, 11); nevertheless since preschool class becomes obligatory from autumn 2018, the definition of newly arrived automatically includes children of preschool class.
Swedish one, but also to the change in children’s status; they are newcomers now:

Transitions are key events and/or processes occurring at specific periods or turning points during the life course. They are generally linked to changes in a person’s appearance, activity, status, roles and relationships, as well as associated changes in use of physical and social space, and/or changing contact with cultural beliefs, discourses and practices, especially where these are linked to changes of setting and in some cases dominant language.

As noticed in above quotation transition can be studied as process. It is necessary to emphasize though that the focus of the theoretical investigations and empirical study under the project is on playing interactions during transition. Transition affects the playing interactions of newcomer children and constantly relates to these interactions by their real time dimension, that is what is happening at the present. The term transition captures both process and time aspects; nevertheless, the latter is conceptualized in the present work as a particular historic time – a specific period when the children are newcomers. We do not examine how long the transition takes: when does the entry happen or when can any successful transition be reported. Transition represents particular real time aspect and serves as a specific context for playing interactions of newcomer children.

Early Childhood Education and Care (ECEC) refers to the educational system, regulated by a state whose involvement varies in different countries depending on policies and on a socio-economic situation. The system includes institutions responsible for education and care provision having various forms and names such as nurseries, pre-schools, kindergartens, day care centers etc.

Play is a phenomenon known not only in human’s but also in mammals’ life. It is often associated with children, but can occur at any life stage. There are multiple definitions of what play is, depending on the field of the studies or theoretical perspectives, applied to it. In the field of ECEC, play is often connected to the issues of children’s development and their well-being, processes of learning and children’s rights to play. The most common association with play refer to a free self-choice activity, involving imagination. During such an activity a domination of the process over the results of it is an important characteristic of play.

Playing interactions are playing actions happening during the periods of free/uninterrupted playtime among newcomer children or children and adults; inter- here underlines that this is a reciprocal process, in which all participants (but a minimum of two in our case) are interrelated and connected by play. The examples of solitude play are out of the scope of this project.

Dynamic System is a system which changes over time, “at any given time the system is in particular state, and follows an evolution rule that describes how it changes states over time” (Koopmans and Stamovlasis, 2016, 397). In this particular project a dynamic system consists of playing interactions between
newcomer children who interact with each other or with adults, all being united by play. A Dynamic Systems approach stresses the holistic, non-linear aspects of play, and it is based on main ideas and concepts coming from Dynamic Systems theory, such as play emergence and complexity, its’ self-organization, attractors and repellors. These concepts are explained in theoretical and methodological chapters, so that my epistemological and ontological position towards newcomer children’s playing interactions is clarified.

**Playing patterns** are a sequence, constantly forming and reforming during play. Kim and Sankey (2010) explain the notion of patterns within a Dynamics System approach by using a metaphor of a kaleidoscope. There is an unpredictability in the patterns when one turns the kaleidoscope, “but, though unpredictable they are nevertheless constrained by and within the totality of the whole” (Ibid, 86). The whole in our case is a system of playing interactions of newcomer children. Which playing patterns are formed and reformed during their play is of a particular interest in the project.

**Aim and scientific questions**
The aim of the study is first to contribute to knowledge about how play emerges among newcomer children and how to understand its dynamics, and second to explore the possibilities of the Dynamic Systems approach in connection to empirical investigations in the field of ECEC. From the Dynamic Systems perspective, playing interactions of newcomer children during the transition time could be seen and investigated as follows: having arrived with some formed perceptions of playing interactions, newcomer children are exposed to new contextual settings. During transition, new playing interactions emerge on the basis of the previous ones both on real and on longitude time scales. The real time scale is of particular interest for an empirical application of the Dynamics Systems approach. The unit of analysis is the course of playing interactions between children during the transition time. The empirical study also deeply explores children’s experiences of playing activities at the time of their integration into the social life of the preschool. The research questions are followed:

- What are the theoretical and methodological implications of the DS approach to play among newcomer children?
- How do newcomer children experience playing interactions during their transition to Swedish ECEC?
- Which play patterns maintain the playing interactions in each new situation for newcomer children during their transition?
Structure of the thesis

The manuscript contains eight chapters. Chapter 2 follows the Introduction chapter and presents an overview of the field of Early Childhood Education and Care. Some general discussion on the situations, which newcomer children experience in host societies opens the chapter; then it focuses on the research on play of newcomer children.

Chapter 3 covers a few variations of system theories (Ecological system theory, Systems theory and Dynamic systems theory), each containing descriptions of play phenomena within a frame of system thinking. The operationalizing of a Dynamic Systems approach is presented at the end of the chapter to demonstrate: a) how this approach is applied within the research project on newcomers’ playing interactions and b) which connections exist between the theoretical approach and an empirical material in this particular project.

Chapter 4 covers methodological and ethical considerations of doing research with newcomer children and describes the research settings and participants. This chapter includes details of how analysis of both interviews and observations has been done with the help of a Dynamic Systems approach: first, an analytical tool specially developed in this project for analysing interviews’ data is described; second, a Space State Grid method for analysing observations is explained and presented in connection to the data material. This Chapter contributes to answering the first research question.

The results of the research are presented in the next three chapters: Chapter 5 talks about the playing experiences of newcomer children. Based on the analysis of the interviews, these experiences constitute four categories (Relational, Emotional, Activity, and Locational). The chapter includes detailed explanations of each of the categories; Chapter 6 focuses on the observations being analysed from a Dynamic Systems view brought as answers to the questions about playing interactions’ patterns among newcomer children; Chapter 7 then brings the analysis of both results from interviews and observations together to deepen and contextualize the discussion of playing patterns. Chapter 8 closes the manuscript with concluding remarks upon the research, as well as its theoretical and methodological grounds in connection to obtained results, including suggestions for the future research.
CHAPTER 2
Overview of the field

This chapter presents an overview of the field of Early Childhood Education and Care in connection to newcomer children and their play. In order to contextualize the situations children are going through, first part of the chapter describes the conditions that newcomers and their families face; the second part concentrates on research about newcomer children’s play. This chapter is not a systematic literature review, but rather a discussion, framed by the results, found in previous research and linked to newcomer children and play.

Giving his keynote speech at the European Early Childhood Education Research Association conference (EECERA 2017) Mikael Vandenbroeck an educationalist, specializing on integrations issues, called for a need for a re-politicization of the field. The field or educators in Vandenbroeck’s words is “abused to advocate to the political status quo” (EECERA 2017). Being politically framed, research within Early Childhood Education and Care shapes policies and practices and in doing so it adds and changes the very meaning of the field. Vandenbroeck (Ibid) warns about the meaning of Early Childhood Education and Care being turning into economic discourse with its connection to future financial savings. The concept of return investments is widely used and appeals to politicians more than value-led discourse, for instance. Economy closely links to statistics, measurements and facts, but not opinions-driven discussions. Vanderbroeck (Ibid) hardly criticizes the econometric paradigm that values measurements and Truth production, which are then used to legitimize the well-fare state.

This remarkable speech echoes several issues the Early Childhood Education and Care field has dealt with for quite a number of years; besides it also shows different levels involved in the discussion. At the paradigmatic level, it has a strong reference to the critique of the paradigm of modernity and a positivistic approach often used in this paradigm (see for example Usher and Edwards (1994, 38-42) critically discussing the modernist project of science and its effects on educational studies, especially at the beginning of the last century). At the methodological level, it also reveals a long-term tension between
developmental studies and Early Childhood Education and Care. This is because historically Early Childhood research was dominated by the doctrine of developmentalism, which was in search for, mostly qualitative in nature, “the model for truth, definitions of valuable knowledge, a way to get factual information about “normal” child development, and guidance for pedagogy” (Bloch, cited in File et al. (2017, 23)). Nowadays, as Vanerbroek (EECERA 2017) notices, the human factor in evidence-based economised research on Early Childhood has been often negatively labelled due to its subjective nature. This can lead to the situation when human dignity, ethical considerations and even democracy will be lost in a space between scientific rigour, aiming to affect policies and policies themselves.

Vanderbroek et al. (2016, 548-549) call for the research process in the field of Early Childhood Education and Care being more open and unpredictable, rather than just being “informed by predefined outcomes (“what works”):

The quest for “what works” might lead to downsizing research questions to those that can be answered in a clear-cut way, hence leaving many relevant questions aside because these questions might create uncertainty and complexity due to the emergence of a diversity of new questions instead of clear-cut answers.

The description of raising uncertainty and the complexity of new questions, emerging in and after a more open type of research, can perfectly define both the research on play and the research about newcomer children in general as well as the research with them in particular. The former is too complex and the amount of questions about how to connect play to pedagogy, what works the best and how to keep play valuable on its own rights, not just in connection to learning (EECERA SIG “Rethinking Play” 2017) stay relevant for the field. Social development requires researchers to rethink play and pedagogy in order to find out possible ways to resolve issues, brought by such development. Rogers (2011, 2) lists some of the issues, including the role of digital technology; questions of diversity, identity and social justice; globalisation, migration, and cultural pluralism; the importance of children’s voices etc. Rogers (Ibid, 6, added emphasis) believes that considering all new requirements “one possible alternative to recontextualizing play into traditional models of pedagogy is to rethink our understanding of pedagogy in relation to the characteristics and benefits of play”. Such characteristics, named by children themselves are of a big interest for this project, especially when it concerns newcomer children.

One should note that the research with/about this group of participants requires both general knowledge and contextualization about situations that many of newcomer children might experience. Thus, in the next subsection of this chapter, with the help of Paat (2013), we will look at the overview of the environments, which surround and affect newcomer children; then we will focus on their play and available views on it from children’s perspectives.
Approaching Newcomer children

Pinson and Arnot (2007) list a few discourses on newcomer children, dominating across several fields – educational, psychological, and political ones. Each of these fields sees refugee (a term used by the authors) children from its own perspective: education contains practitioners’ discourse about good educational practice; psychology is preoccupied with trauma discourse, while the political sphere is interested in questions of the economy or citizenship of refugee children. Rutter (discussed in Pinson and Arnot, 2006) particularly criticises trauma discourse, which affects educational practices since it might: a) lead to universalising the needs of newcomer children, b) redirect attention from political and personal oppressions towards vulnerability and weakness from trauma. Lunneblad (2017), in his study on the integration of preschool refugee children and their families in Sweden, talks about such a redirection too. He found out (Ibid, 367) that there is a risk of “silencing issues about families’ living conditions in the receiving country” when “placing a one-side focus on traumatic experience”, as this strong theme of trauma prevailed among preschool professionals’ narratives.

According to Pinson and Arnot (2007), globalization, human mobility and forced migration also increase tensions “between, for example, the exclusionary policies of immigration control (that are based on the logic of national membership) and the universal rights of children to welfare and education” (Ibid, 405). Pinson and Arnot (Ibid, 403) have some doubts about whether for example the application of an ecological system approach as one of the possible research solutions about refugee children might be able to reveal all these tensions. They however agree (Ibid) that for educationalist practitioners such a framework would be useful in “thinking about how to provide for these children in a holistic way”.

One of the important works to reflect about newcomer children in a holistic way was carried out by Paat (2013), who made an extensive description of the studies of children and their family immigration process in the USA. With the help of an application of Bronfenbrenner’s ecological theory Paat (Ibid) reviewed existing literature on social adjustment and adaptation of immigrant children in the USA and demonstrated how a better understanding of the trajectories of immigrant children’s assimilation could be reached when focusing on the family mechanisms during the process of immigration. Thus, the starting point in the analysis was a microsystem consisting of children’s family and peers.

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9 Here after in the text, the following definitions of newcomers – refugees or immigrants -- are used as in the texts of original studies.

10 This variation of system theory will be presented in more details in Chapter 3.
We describe Paat’s study (Ibid) in detail, combining his results with other relevant research results about immigrant children in order to map some crucial issues concerning and affecting children in a context of their transitions into receiving countries.

According to Paat (2013), parenting practice and family dynamics affect children’s assimilation according to the type of dynamics\(^\text{11}\) that occurred. Family dynamics plays a crucial role in the process of transition into American mainstream society, but it is not the only factor within the complex process. An equilibrium between children’s and parents’ views on the process of immigration can be an example of another ecological factor which affects immigrant children at the micro level (Ibid, 957):

“even though parents and their children may share different world views, intergenerational clash and cultural dissonance are less likely when parents share the same pace of acculturation as their children and when children respect their parents’ wish to maintain their family cultural tradition or beliefs”.

Educational aspirations of children based on and supported by or alternatively opposed by the views of their parents upon educational opportunities, socio-economic status of the family, heavily affecting the educational aspiration, all these other factors create various dynamics in the microsystem. The latter also includes children’s bonding with peers that also affects children’s immigration process for ex. acceptance or bullying by local children, friendship within and outside of the family, etc.

It is not only about views of parents on educational opportunities, but also about pedagogies of education, which can be an obstacle for a smooth children’s entrance into the educational system. Brooker (2011) notes that the association between play and pedagogy, familiar for a discourse of the industrialised North, might be alien to parents in minority communities. Parents’ perspectives on school activities can be in a conflict with the educationalists’ vision, since the former often link their own experiences, obtained from outside of the receiving country. Brooker (2011, 157) quotes a mother who participated in her previous study and was concerned about the role of play in preschool settings (we put this quotation in full as it shows a very sharp distinction between parental and preschool visions of play):

\[\text{11 According to contemporary immigration theory (Portes & Zhou, 1993; Waters, Tran, Kasinitz, & Mollenkopf, 2010, cited in Paat, 957), there are three types of such a family dynamics for the second generation of immigrants. Upward assimilation, when children lose most of their cultural differences, and getting undistinguished from the host society; downward assimilation, when children face social stagnation often caused by low parental resources; and upward mobility combined with persistent biculturalism, when children successfully navigate between host country’s customs and language and their family’s custom and language.}\]
“[s]he has to work harder, you have to stop her playing... every day, play, “what did you do? – “play”, then after school – play; Monday, Tuesday, Wednesday – play... she has to stop playing!”

Tobin (2020, 17) described similar negative attitudes of immigrant parents towards a play-based curriculum. The parents’ expectations were linked to more academic approach in Early Childhood Education, so that children could learn more than play. As Kurban’s research showed (cited in Tobin, 2020) immigrant parents from Paris, France were more satisfied with their children’s experiences in école maternelle than the parents in Frankfurt, Germany since the former has an academic focus and the latter has a play-based approach in Early Childhood Education and Care. Tobin (2020) described that some practitioners were aware of such expectations and tried to explain to the parents that play was a valid and stimulating environment for learning.

As for play itself, without its connection to educational practices, then, for example, the study of Cote and Bornstein (2005, 486) demonstrated that the behaviour of immigrant mothers during their play with children may “acculturate, and therefore, that their behaviour may acculturate more rapidly or easier than their beliefs”. Participants in the study came from five various cultural groups, but all represented the middle-class. It means that results, even if we apply them at the same cultural groups, would not apply to participants from working-class families.

All factors mentioned above about the parenting practice and family dynamics become interconnected with the situation in the receiving country and its responses to immigration process at the mesosystem level – which policies and strategies it uses to support, resist or avoid immigration issues (Paat, 2013). For instance, how the education system sees and meets the educational needs of immigrant children depends on state policies and regulations (see Background subsection in Chapter 1 for a Swedish case).

Wimelius et al. (2016) in their study of the reception of unaccompanied refugee children in Sweden (with a focus on children 16 years old or older) identified different actors and investigated their efforts with integrating unaccompanied refugee children. Interviews with social workers, custodians, heads and coordinators of Homes for Care and Housing and supported housing, and various staff at upper secondary school, were analysed via a social ecological system framework. The results demonstrated the lack of interconnections between actors, the lack of “an articulated political vision of what it was they were supposed to achieve in the long run“ and a lack of evaluations and long-terms follow-ups (Wimelius et al, 2016, 155-156). Wimelius et al. (Ibid) call for studies with children themselves, underlining the importance of hearing their voices, so that it would be possible to combine views from all the participants of the process of reception and integration.

The next level of ecological theory, explored in Paat’s review (2013) is the exosystem, which consists of neighbourhoods in which immigrant children
live and study. There is a variety of co-ethnic communities which often become neighbourhoods for immigrant families. Communities might have different social organisation levels and levels of economic advantages or disadvantages: segregation levels from the mainstream society can vary. For example, the high segregation of a community might lead to social isolation which keep immigrants out of up-to-date information and opportunities in the labour market since social bonds are too tight which affect or make decision-making harder. Family choices (if there are any) or strategies to cope within the exosystem inter-correlate and directly affect the family immigration process and children.

The macrosystem is a level which is quiet distant from a family, but it makes a contextual basis for family life (Paat, 2013, 961):

[i]mmigrant families, for instance, are socially disadvantaged as newcomers due to unfamiliarity with the dominant cultural practices and social norms. They are also less privileged in terms of their capacity to voice and to exercise their rights related to their children. If mainstream society and the immigration laws are perceived as welcoming and friendly, immigrant families are likely to feel supported.

The questions of prevention of marginalization of immigrant families (based on downward assimilation) are raised at this systematic level.

Parents and children in the family while being in a host country can perceive the macrosystem in its forms of cultural beliefs and values differently. Children often feel stronger tights to the country they arrived in, in comparison to their parents; once again depending on the microlevel and dynamics within the family, some children might experience uncertainty between a family identity and a new national identity.

Individual beliefs and values can be perceived differently by children and by representatives of a host society too. As Waniganayake (2001) noticed in the study on challenges in a play centre for refugee children in Australia, disapproval of beliefs and values might appear from both a refugee child and an Australian teacher. A child who did not have regular access to food or nutrition, watching an Australian teacher who uses “rice as a substitute for sand play” or a teacher observing violent peer play with a use of toys as weapons, would find each other’s behavior unacceptable. This happens, Waniganayake (Ibid) continues, because in both cases, “experiences in a particular context define the individual's values and expectations”. The study (Ibid) describes a possible solution, taken by the staff working in a play centre. They bought war toys and during play reconstructed battle scenes, “which the children had either experienced and / or observed in their homelands”, believing that "when children have grown up with violence and disruption in their lives, they need many opportunities to come to terms with it through their own play" (Milne, 1995, cited in Waniganayake).
The last level in the Bronfenbrenner’s ecological theory, or the *chronosystem* as seen by Paat (2013), relates to life transitions and closely links to the definition of transition from Chapter 1, when the immigration process connects to new challenges for the status of a child, her cultural and linguistic identity etc. This system’s level deals with the notion of time and gives an opportunity to see development tendencies of the process of immigration or integration of immigrant children. This is exactly the level which practitioners in Wimelius et al. (2016) indicated as missing in the process of integration they were working on and were trying to improve.

Thus, after an extensive description of multi-layered challenges in various contexts, which immigrant children and their families are embedded in, we can further move to children’s play, being its own realm filled not only with challenges, but joy and pleasure too (Oliveira-Formosinho, 2009).

**Newcomer children and play**

In this subsection, the state of research in the Early Childhood education and Care field is represented through some studies in connection to play and newcomer children as well as their experiences. Searches in ERIC and Google Scholar database were carried out using three sets of keywords: children’s play together with (AND) newcomers (AND) early childhood; children’s play together with (AND) immigrants (AND) early childhood; children’s play together with (AND) refugees (AND) early childhood. The total number of retrieved articles was 76, then after examination of abstracts, those articles which concerned children’s play or their views on it as well as observation of their play were selected for presentation and discussion. The snowball technique was also applied for checking references in the chosen articles for further selection. Thus, there were twenty-one articles chosen for this Chapter.

Boldermo and Ødegaard (2019,459) in their review of research about education for sustainability in early education noticed that:

> topics, revolving around migrant children’s situations and their experiences of belonging to communities or society have neither been particularly investigated nor discussed in the context of Early Childhood Education for Social Sustainability.

The results of the literature search demonstrate that there is a lack of newcomer children’s experiences not only in research about social sustainability, but also in Early Childhood Education research in general. As Bak and Brömssen (2010) notice, the representation of ethnic minority children has mostly been connected with their incompetence in school settings. Lunneblad (2013,3) for example writes about aesthetic expression by newcomers as one
of the positive ways to access culturally different children: meanwhile the au-
thor gives examples of several studies which show the correlation between
cultural differences and problems associated with these differences.
Consequently a large part of educational research is dedicated to pedagogical
ways for the inclusion, adaptation and incorporation of newcomers (e.g., Ad-
ams and Kirova, 2007; Andersen and Sand, 2011). Teachers'educators' per-
spectives of positive 'climate of equality, care and support' (McAdam and Arizpe, 2011:18) for newly arrived children are often associated with address-
ing the language needs of the children. When Alvesson and Sköldberg (2009,
255) talk about linguistic reductionism, they do it from a critical perspective
towards limited approaches within critical theory and postmodernism as a
metatheory. Not precisely in Alvesson and Sköldberg’s frame of references,
but mentioning the approaches to newcomer children, one can also talk about
“linguistic reductionism” as one of the adults’ perspectives. Nevertheless, the
linguistic problems are not the only issue that arises in a context of transition.
We can consider approaching newcomer children from the position of their
social competence too. As already noticed in the introduction, this could be
done in a dual way: through child vs children’s perspectives. Play is one of
the domains in which children appear competent and skilled actors (Rogers,
2011, 5). This fact makes the research on children’s perspectives particularly
fruitful within the play framework.
Kirova’s study of children’s representations of cultural scripts in play
(2010) demonstrated a significant role of play during the transitions of refugee
children from home to preschool culture. Kirova underlines the high complex-
ity of the phenomenon of play performed by refugee children when it comes
to the question of representation of cultural context during their play (Ibid,
80). Results of the study reveal a big interest of refugee children to express
their cultural knowledge in play within the space created by adults particularly
when this space contained cultural artefacts. The latter served as useful ele-
ments in children’s enactment of their cultural knowledge (Ibid, 88).
Kalkman and Clark (2017) adopted Kirova’s cultural scripts in play in their
study of a newcomer migrant girl’s transition from an introductory group into
a mainstream day-care group in Norway. According to Kalkman and Clark
(Ibid, 294), children’s scripts expose how their social and cultural connection
to people in place and time takes place; besides, the authors recognise role
play as a form of board-crossing, “without the requirement of abandoning their
existing cultures”. Being anchored in ecological and socio-cultural theories,
Kalkman and Clark (2017, 293) applied the notion of transition as a dynamic
process connected to liminality. It consists of three phases: pre-liminal, when
children are aware of separation from previous social and cultural places; lim-\ninal, when children become a “socio-cultural passenger” in between the past
and future; and post-liminal, when children get a new status and reincorpora-
tion into new socio-cultural surroundings. The results showed that the process
of transition was non-linear, meaning that the three phases did not follow each
other in an order, but rather were interrelated on a daily basis in the day care. The findings revealed (Kalkman and Clark, 2017, 301) that the successful lamination of a child within role-play, being a collective production, depended on a: “(1) participant’s individual ability to revisit original events; and (2) participant’s ability to recognise identities, social activities, and local cultures”. In addition, children’s access to formerly established friendships was also an important element for the smooth transition. In this regard, it becomes important to know about immigrant children’s perception of friendship too.

Oh and Lee (2019, 658-659) in their study of understanding immigrant children’s conception of friendship discovered three values of friendship: a shared means of communication, including both non-verbal communication and a shared native language; respect for play space, understanding the play theme, joining according to the ongoing theme; and mutual assistance and responsiveness. The ethnographic study took place in the USA and included two Korean children who just entered into the Early Childhood Education and Care system. Oh and Lee (2019) underlined the dialogic character of friendship relations among children so that all values could be implemented and mutually accepted by children, participating in relations. The authors (Oh and Lee, 2019) noticed that the conception of friendship was different among teachers and children. The former often named children who played together as friends, but children’s perspective was different, since in their view, friends are “particular peers who are considerate and respectful” (Ibid, 659).

The other study by Kirova-Petrova and Wu (2002) explored reasons for miscommunication between newcomer children and their peers from the majority of population and considers children’s perspectives. Play-interviews during a game designed by the researchers allowed accessing newcomer children’s perspectives on relations with their peers. The study did not take place in Early Childhood Education and Care settings; rather it concerned elementary school, but nevertheless it is interesting to mention this study in the overview due to the following:

a) participants of the study were recent immigrant children who were involved in the research process at the big extent;

b) atmosphere of playing the game created a nonthreatening context for children-participants.

The described study demonstrates the use of playing situation as a good addition for the ordinary interview procedure, which in this case has fewer restrictions for the participation of children - the interest among children to participate becomes higher and they could be more involved.

Apart from its possible instrumental use as part of a method (as Kirova-Petrova (Ibid) did), play can have a contextual character in connection to research on newcomer children. Investigating play in terms of context (where, with what, with whom) is a common approach as in Trang and Adams (2010, 120) who aimed “to explore the role of play in helping newly arrived children...
from minority ethnic background to gain positive learning experience”. Results showed the positive role of play for improving communicative skills, learning language, and making friends. Playing activities helped the participants and their peers to learn about diverse cultures. Trang and Adams (Ibid) suggest practitioners should have special training for working with minority group children, to be aware of specific playing activities that newcomers might have and to inform newcomer children’s parents about the importance of play in children’s life.

Ledin and Samuelsson (2017) were interested in the multimodal character of children’s play and its potential for scaffolding the second-language development (L2) of newcomer children in Sweden. Exploring play, which relies on the body and the material world and, not on language, Ledin and Samuelsson (Ibid) related it to the L2 development of children without same-language peers. Without restricting L2 development to play only, Ledin and Samuelsson (Ibid) suggested important play qualities for young children in general. This included the parameters and rules in play, degrees of freedom they experience during their play, and high involvement of players.

In a different way from a play in a context approach (see the above examples), the research on newcomers in Early Childhood Education and Care in connection to children’s interactions and communication (including verbal and nonverbal types) often use a play as a context approach. A scheduled free-play activity as a context was also of Olausson’s interest in her research on children’s construction of cultural diversities in Swedish preschool. Being deeply focused on children’s perspectives, she was particularly interested in variations in play initiated by children while observing them during free-play (Olausson, 2012, 69). Olausson’s research included a varying number of children with immigrant background, but not newcomers though. Results revealed a diversity of competencies in connection to gender, as well as a presence of power games due to hierarchical positions in peer groups; this also affected the process of inclusion and exclusion. During the periods when pedagogues did not disturb play, some children were dominant because of their high rank in the peer culture; thus their cultural impulses were part of the play while other children having lower status and social position had to subordinate themselves to the powerful players.

Kalkman et al. (2017) in their study explored power relations among a group of children from an ordinary Norwegian preschool and one of two newcomer immigrant girls, who just entered into this preschool. Kalkman et al. (Ibid, 33) described social competition and the exclusion of a newcomer, which were displayed through relational aggression by other children, especially by a girl with a higher hierarchical status or as the authors name it after Bourdieu, a girl with “a high symbolic capital”. “Using indirect and non-physical violence to communicate rejection” (Ibid, 33), the girl was confirming the outsider position of a newcomer; thus step by step the competition in and for
play between this girl and a newcomer turned into a continuous relational aggression, performed by the former. Sadownik’s study (2018, 967) of reconstructed voices of Polish migrant children in Norwegian preschool confirmed the importance of inclusion at the symbolic level coming from both adults’ and other children’s sides. As Sadownik (Ibid) showed, such inclusion was not possible for newcomer children due to their lack of key skills (language) and competences (play) for the host country. Besides, a devaluation of migrant children’s symbolic capital, including their previous play experiences disturbed their sense of belonging to and active participation in preschool.

Another example of play as a context approach is a study of Björk-Willen and Cromdal (2009) who investigate children’s own understandings of educational orders observing which methods children use to do educational activities within “free play”. The participants of the study represented by two corporuses - Australian and Swedish – include only recent newcomers in the Australian case and some newcomers in Swedish settings. Children’s interactions are in focus and play “is not meant as an analytical account of what participants are doing”; rather it refers to scheduled activities which provide a space for interactions (Ibid, 1496). Results showed that young children understood logic of how educational culture is organized and that socialisation to schooling is accomplished not only through teacher-led instructions, but also through the peer group’s activities.

The study of Sudanese refugee children’s transition to preschool (Ibid, 283) shows how play in Early Childhood Education and Care settings serves as a space for “cultural mediation, contestation, and identity negotiation”. This study is of a particular interest within the overview. The research questions in it and furthermore the questions posed in the discussion section have many similarities with the present research project, but that study differs in its approach.

Dachyshyn and Kirova (Ibid, 291) see play as an open space for “forging hybrid identities” of both children and parents – the study examines interactions between three dyads of refugee children and their mothers during playing session - building with blocks. One of the research questions deals with relationship dynamics that develop between refugee children and adults during the transition from home to preschool (Ibid, 285). The authors present the description of different roles children had as mediators between the host country culture and their parents in the open space provided by play (“play as third space” in between home as first space and school as second one (Yahya and Wood, 2016)). Authors recommendations include the idea for early childhood educators to ask themselves about connections between children and adults that naturally occur and help to open up the space (play in this case) for smooth
transitions as well as to think about facilitating practices for negotiations between children and parents\textsuperscript{12}.

Yahya and Wood (2016) used interviews with 19 immigrant mothers and their children to discover categories, which show how children used play as third space between home and school. These categories are (Ibid, 312): “(1) play as a bridge to understand different cultures at home and school; (2) choosing a playmate with a similar identity to navigate school culture; (3) similar play at home and school; and (4) playing with cultural identity”.

Play seen as a “bridge” between cultures was explored in Botsoglou and Kakana’s study (2003) of the co-existence of Greek and immigrant children in Early Childhood Education settings. Contrary to the results in Sadownik’s (2018) study, the authors found that spontaneous play activities helped immigrant children in their self-expression and allowed them to share common experiences with local children, often with the use of non-verbal communication. Teacher directed activities rarely included immigrant children, since they (similar to participants in Sadownik’s research (Ibid)) could not understand the language and preferred not to participate.

The last study, presented in this Chapter comes from the Finnish Early Childhood Education Context. Arvola et al. (2017), being interested in the development of daily practices and activities to be more accessible and understandable for all participants, explored the correlations between immigrant children’s everyday activities and the level of their participatory actions with others.

The results demonstrated statistically highly significant correlations between children’s participation and their involvement in such activities as role play and physical activity. Children were more attentive towards the group of children or toys than towards the other child or a toy. Immigrant children’s participation was also positively correlated with the several positive emotions: “surprise, alertness, curiosity and excitement, as well as happiness, joy and contentment” (Ibid, 2544).

\textsuperscript{12} As the study has socio-cultural theory as a framework, it allowed highlighting the complexity of the phenomenon of play among newcomer children and their parents as well. Nevertheless, socio-cultural approach could be limited in capturing the very dynamics of the changes in the relationships occurring during the transition. Studying dynamics as a process in turn should provide detailed answers to the character of emerging connections (patterns) which could be used for supportive facilitating practices to keep the emerged connections functioning.
CHAPTER 3
Theoretical framework

Play, being a complex phenomenon and constituting an important element in Early Childhood Education and Care practices and research needs to be analysed using approaches having a capacity to explore it in depth. This chapter aims to present system perspectives as capable of such explorations, presenting some basic and important concepts and ideas within system thinking. Since both System Theory and Dynamic Systems approaches come under the same ontological umbrella, but System Theory specifically in some of its variations is more familiar for Early Childhood Education and Care, the chapter starts with the use of systems theories that are more familiar in the field. There is an example of ecological theory as one of the most influential in the field with few other demonstrations of the use of systems perspectives. The chapter continues with an introduction of Niklas Luhmann’s Systems Theory and its possible application to play. The works of Bergen and Fromberg illustrate the dynamic systems approach to play in Early Childhood Education and Care.

Variations of system theory: Ecological systems theory

The ideas of systems theory are not new to Early Childhood Education and Care. For instance, Bronfenbrenner’s ecological systems theory gained a prominent position in ECEC since its establishment in the 1970’s (Bronfenbrenner, 1979). As theories of development were one of the top interests in Early Childhood Education and Care, an ecological (or bioecological in a later version) theory of development and socialization has attracted researchers in the field. Some tried to apply it towards to the ECEC field as a whole (see for example Penn, 2005 who critically reflected on the system of US childcare with the help of Bronfenbrenner’s theory). Some have used it for research on children’s transitions within different systems, e.g. transition to the pre-school from home/family, from pre-school to school, etc. (see more in Vogler et al., 2008; Perry et al., 2014).

Bronfenbrenner placed the child in a centre of the interactive system consisting of subsystems of different sizes (micro-, meso-, exo-, macro-, and chrono-). The latter subsystem – the chronosystem - was added later to the
previous four. It embraces the temporal dimension, change through time, be it short or long periods. All subsystems are interconnected and affect each other - if the change takes place in one system, then this change will have an impact (the degree of which may vary) on other systems.

Subsystems in Bronfenbrenner’s theory represent various factors in the environment or environments themselves that have an influence on the child during their process of development and socialization. Each of the subsystems signifies a context. The context affects the child and at the same time the context is changed by the child since there is a process of interaction between the actor and the environment. This context, as Härkönen (2007) notices, does not have a geographical character (e.g. family, home, school), but a degree of personal level of participation of the child in each context.

The microsystem includes a context of the immediate surroundings of the child (family, peers, siblings, caregivers, etc.) with face-to-face interactions, relations and roles within it. The mesosystem deals with the broader environment influencing the child and her family. At this level, the contexts are interrelated, so the question of development concerns two or more such contexts – home and school, for instance. The exosystem consists of people and institutions with an indirect influence on the child (the school board, mass media, parent’s working place, etc.). The level of participation of the child in this subsystem could be none or low, but all changes and processes in this system affect the child to a certain extent. The macrosystem comprises values, cultural beliefs, traditions, and laws. It is the most distant system from the child, as her participation in it is more limited than in other systems. Nevertheless, the macrosystem affects a child through other systems in which she has more direct contacts and relations.

Vogler et al. (2008) see a possible objectification of the boundaries of the system (this is especially the case when the systems are oversimplified) as one of the limitations of an ecological theory alone with its limitation of taking subsystems as completely coherent structures. For instance, a family with dysfunctional tendencies or high level of conflict within it could have more impact on a microsystem of a child than “the concept of a microsystem implies” (Ibid, 25) or to the contrary, a child’s impact could be none. The individual character of each personal case/individual ecology might also vary dramatically, seen from different perspectives (children’s or adults’) and by different observers.

Vogler et al. (2008) pointed out another limitation of the ecological theory – the central position of the child might reflect a perspective of social, educational or children’s rights sectors, but obscures non-prioritized or even marginalized children in many communities around the globe. This limitation is linked to socio-cultural ontological views: the very placing of cultural beliefs as a distant system from the microsystem of a child was critiqued by the socio-cultural school which assumes that cultural artefacts and beliefs are the main mediators of daily activities and experiences of children.
With this very short theoretical description of ecological theory and some of its critiques, my intention was to demonstrate one of the possible variations of systems thinking which is widely used in the Early Childhood Education and Care. It is also to demonstrate how important general features of systems theory are supported by terms and concepts that are familiar to the Early Childhood Education and Care field. The following statements can describe these features:

- each part of the system is a part of another one, and;
- changes taking place in one of the subsystems affect all others to different extents from invisible effects to changes in the whole system.

**Illustration I Ecological approach to children’s everyday experiences**

Tudge and Hogan (2005) applied an ecological approach in their research project the Cultural Ecology of Young Children (CEYC). They were inspired by the idea of the integration of psychological and sociological perspectives that provides methods to focus on pre-school children’s everyday experiences in more detail. Therefore, they used an ecological approach for naturalistic observations of children with two principal moments: “first, that children are embedded within social and cultural contexts and that the relationship between child and context is transactional; second, that we can learn a great deal about children’s lives by following and observing them within these contexts” (Ibid, 103). Tudge and Hogan (2005) agree that activities and interactions (parent-child, child-child activities, group or solitary play, etc.) establish the engines of development in Bronfenbrenner’s terms, but according to them, it is also important to obtain knowledge about particular individuals involved in the process of interaction. It is often the case that socialization research is done from the family perspective, focusing on what parents do with or for children: on the other hand, Tudge and Hogan wanted to approach interactions from the perspective of children from the USA, Russia, Estonia, Finland, South Korea, Kenya and Brazil.

There were several groups of activities to observe: lessons, work, play, conversation, and “other” (sleeping, bathing, eating, etc.). Subcategories in the play group included academic play (with academic objects – for example, playing with a calculator); role-play (prosaic, mythical, object); toys; other play (not designed as toys, household objects, natural objects or no object at all – rough and tumble, chase). According to the view that a context includes interrelations between the immediate setting and the broader socio-cultural context, Tudge and Hogan wanted to see culture-relevant differences (this interest traces back to an theoretical interest in Vygodsky’s work, see more on this on the p.61) in the pre-schoolers’ activities.

Key findings for play showed that up to 70 percent of observations had connections to play; also, some variations in types of play were discovered.
For instance, Korean children played more often with school-related objects (academic), while Kenyan children had more playing time with objects not designed as toys – something they found, things from adults’ world, etc. Tudge and Hogan linked these variations to the ways the world around children is organized by adults, to the level of involvement of children in the activities, to the cultural backgrounds or contexts, etc. Without looking at the children’s activities as something united and affected by context, the findings might be viewed as contradictory.

This illustration provided a case of the application of an ecological theory on children’s activities. It is the systems character of ecological theory which “allows tackling numerous environmental factors and numerous persons in different interaction relationships, roles, actions and processes”, in Härkönen’s words (2007, 6). Depending on the particular research interest, the emphasis or focus might be on different system levels, on different interactions, or on different processes. One can take a variation of the ecological system theory in approaches to research on playwork as an example when the focus has been placed on particular interrelations.

*Ecological/general system theory and play*

Wendy Russel, together with Stuart Lesser, found ecological theory useful to frame the knowledge and standards for defining playwork13. In their ecological system variation, a playing child lies at the centre of the nested subsystems as she is the main object of the field; the other subsystems consist of the playing environment, the organizational framework, as well as the wider context (Russel, newsletter). While being particularly interested in playwork as a way to provide a space for play, Russel’s concerns (2011) include for instance contradictions which playworkers face in their daily work. These contradictions are rooted in what is described as “tension triangle between understandings of play, policy and practice” (Ibid, 5). From systems theory point of view, to understand these contradictions, an intra-system level is needed at which the interrelations at exo- and macro-turns are more important to check first than to do anything at the level of a micro-system. However, a playing child lies at the centre since all the processes in the other three systems aim at the child.

Of particular interest is Russel’s emphasis on the lack of scrutiny towards play, be it definition or conceptualization. “Play is something very different from play provision or playwork” (Ibid) she noted, but the research focus within playwork lies rather on play than on its provision. Yet empirical research on the benefits of play does not immediately identify those benefits in

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13 A playwork term might remind us of a contradictive dichotomy with regard to play in the Early Childhood Education setting; nevertheless here it refers to a particular occupation in the UK with a playworker being the one whose responsibility is to organize, support and develop children’s play. Playworkers are not only involved in different sorts of non-formal settings, but can also participate in activities within a formal educational circle for early childhood.
playwork. Russel talks about a “pedantic distinction” between play that became a common sense term for describing playwork or play services.

In Russel’s writing, she states that since the construction of play as an activity is a dominant concept in the playwork sector; it brings a vision that play “takes place in time-bounded allocated spaces” which might not always be the case (2011). Play and playwork are related but play exists independently. We come back to the argumentation about categorisations of play after further introduction of system thinking, first with the help of Härkönen’s ideas and second with a discussion of a Luhmannian system view.

Härkönen (2003) tries to implement a systems perspective for framing educational thinking in the field of ECEC in general and sustainable education in particular. My focus is on the former, which could provide a fruitful discussion on the usefulness of the systems definition not only for educational thinking itself or the concept of preschool as in Härkönen’s writing, but also for play. Härkönen does not write in particular about play, but some notes from her about a systems theory view on ECEC could be useful for researching play.

Figure 1. A systems theory four-dimensional model of the concept of play in preschool. Adapted from Härkönen, 2003, 34

Härkönen (2003) discovered the system character of educational thinking by applying a historical analysis of philosophical ideas of several well-known philosophers and pedagogues (Fröbel, Neill, Pestalozzi, and Montessori, to name a few). She proposed the general systems model of educational thinking at first, and then the model of the concept of preschool in the form of a system: “[e]very dimension deducted from the definitions and their contents is a system. In relation to the preschool system they are its part-systems and part-systems’ part-system” (Härkönnen, 2003, 35). Various inter-combinations
with their relations (Härkönen indicated them by several numbers) and the processes inside them, etc. can be studied. In Fig.1 (see previous page), we have attempted to show one possible model of the concept of play in preschool from systems theory, based on the original Härkönen model of the concept of preschool. The “easiness” of just adding play in various dimensions can be explained by the fact that play is one of the cornerstones in the Early Childhood Education and Care. Play is presented in almost every aspect of preschool life; it is connected to practice; it is researched by science; courses on play are taught to the Early Childhood Education and Care students; and, preschool thinking on play includes various types of discourse.

Illustration II An ecological approach to children’s social experiences and digital play

Arnott (2016) used a techno-ecological framework to explore 3- to 5-year-old children’s interactions with various digital technologies, approaching these interactions not only from the perspective that technologies affect the behaviour of children but also recognising that a child’s motives and attitudes play their role in the interactions. Arnott (2016) discovered two interconnected systems involved – the Digital Play System and the Preschool System; she underlines that these theoretical concepts are not new, but the novelty lies in their application to technological experiences.

According to Arnott (Ibid, 278), the central element for social interactions were clusters of children (multiple children) which continuously evolved and thus directed children’s digital play experiences; negotiations between peers and between them and technology constituted transformations of the clusters. The three following elements help to describe children’s experiences in the digital play system (Ibid, 279-280):

- **reciprocal behaviour and interactions:** three engagement categories (pro-social, anti-social, and task-driven), nine forms of social interactions (sociable, sharing, supportive, unsociable, hostile, possessive, helping, exploratory) and multiple actions and behaviours (e.g. extended verbal exchange, verbal invitation to play, seeking praise or attention)
- **children’s social participation** (a clear pattern not determined; but instead multiple forms of participation were observed within multiple play episodes);
- **the matrix of social status roles and technological positions** (recognition of the roles and acting upon these roles and positions both in the clusters and in the interaction with technologies).

In order to better understand the dynamic nature of clusters, Digital System Play was then analysed through the frame of the Preschool system, which included such elements as “technological artefacts, cultural systems, routines and practices; and children and practitioners as social agents” (Arnott, 2016,
A holistic approach used for the study, allowed the author to discover factors which participated in the process of negotiation and social experiences of children, as well as how agency, technologies and cultural context are interrelated, affecting children’s digital play. Because this interesting study has many common points of departure with the present project, we come back to it later in Chapter 8.

Variations of system theory: Niklas Luhmann’s systems theory

Now after an introduction of variations of system thinking which are familiar for the ECEC field, we will continue with system theoretical insights from sociology and developmental psychology to demonstrate how the ECEC field and play within this field could be empowered interdisciplinarily. In order to think about play through a sociological system theory developed by a German thinker and sociologist Niklas Luhmann (1927-1998), we first present the Luhmannian version of system theory in short, especially focusing on his educational system as having a direct connection to the Early Childhood Education and Care field.

Being an interdisciplinary field, system theory has several concepts which could be found across disciplinary borders – second-order cybernetics or a biological concept of an autopoietic system could be such examples. One should notice, however, that the application of system theory to sociology by Luhmann has a definite sociological sense. The German research community for instance agreed upon the use of Systemtheorie (System theory) in terms of sociology, while other fields use the term Cybernetics instead (Herting and Stein, 2007, 3).

Luhmann describes modern society as a complex autopoietic system constructed upon different functional sub-systems (the educational system included). The idea of complexity is borrowed from second-order cybernetics with its following characteristics: non-linearity and emergent properties while the self-organization notion came from the concept of autopoiesis in biology (Ibid, 3). Luhmann underlined that modern times bring a problem of complexity and a sociological theory “that wants to consolidate the conditions

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14 A non-linear approach does not intend to trace cause-relation or input-output linkage, as a linear approach would do by contrast. Non-linearity is linked to the idea of how complex systems function: consisting of communication and perceptions of these communications by the systems, they are constantly in a dynamic and interactive process of self-organization. In mathematics, if plotted on a graph, these types of relations do not appear as a straight line.

15 Autopoiesis is system’s ability to produce and reproduce itself (the other terms can be used such as self-organisation, self-regeneration or self-production); the autopoietic feature of the system would be discussed below in the section dedicated to educational system.
of the discipline must not only be more complex, it must be much more complex than the classical authors and their interpreters – even Parsons¹⁶ – had thought. This requires different theoretical precautions in regard to validity and connectivity, internally as well as externally, and it requires, not least, building the reflection of complexity (and the concept of complexity) into the theory itself” (Luhmann, 1996, xlix).

Different theoretical precautions dramatically distinguish Luhmann’s position from any other sociologists. It is a very special approach which should be adopted in case someone wants to see through social systems’ lenses. It is not a sociological switch of focus from structure to agency; it is a switch of content: criticism of sociology (in a form it existed in before the introduction of system theory) by Luhmann has philosophical-conceptual roots. He “impose[s] limits on social criticism, on Enlightenment thinking¹⁷, and ultimately on social movements that dreamt about the moral-practical perfection of society” (Sevanen, 2006, 5).

According to Luhmann, there was a turn from stratification to functional differentiation which brought an elimination of social strata and a change of social order in which sociology’s conceptualization based on individuals “no longer suffice” (Luhmann, 1998, 314). In a modern society, these are subsystems which play an important role; and there is no universal authoritarian (like a priest or a king for instance in pre-modern societies (Halsall, 2012, 8)) who can affect the work of the functionally differentiated systems (economic, legal, politics, education, science).

In the absence of an authoritarian, it is a system, which uses self-organizational abilities to maintain the order and organize itself in accordance with the internal interactions between the elements as well as with external interactions (environment). Individuals belong to the system’s environment, not to the system. Therefore, instead of focusing on agents and social order, Luhmann proposed focusing on systems and their environments. ”Agency is no longer located in the person, but is now a quality most readily understood to be part of systems” (Gershon, 2005, 105). What becomes important and a fundamental element in the system is communication, consisting of a synthesis of information, message (utterance) and understanding (these synthese will be examined later when describing a playing process). Communication is however not attributed to the individuals’ actions or emotional moods; it is de-subjecti-

¹⁶ Talcott Parsons was Niklas Luhmann’s teacher, a system theorist himself who saw actions to be a construct for a system; it differs from Luhmann’s view on communications to be a constructing system element. Parsons’ question is how each of many society’s systems functions and contributes to the whole. Luhmann’s concern is how systems distinguishes themselves from the environment and function with reference to their own processes, differently for different systems.

¹⁷ Enlightenment thinking is seen as connected to the use of reason in the rational social order and to the ideas of humanism (aiming for democratic values and a possible change of society).
vised: “for Luhmann communication is primary characteristics of social system which maintain it by using certain psychic and physical capabilities of individuals” (Sevanen, 2006, 4).

An anthropocentric model of society with no human agents but communications as the basic element in it was heavily criticized as antihumanitarian and representing a model of social engineering with no interest in economic and power structures (Habermas in Sevenen, 2007). Nevertheless, it was Luhmann’s intention to exclude individuals (including their roles as actors and supporters of social order) out of sociology, as they represent another system of reference; they are subjects of psychology, while sociological analysis lies in the area of the reflective selection of the systems (Leydesdorff, 1999, 76). However, the exclusion of people concerns only the unit of analysis (when it comes to sociology), people do not only present in Luhmann’s theory – the social systems cannot exist without people; there is a pure connection between these two units. For Luhmann, the question of interest is how the system reflects, selects and differentiates itself from the other systems and from its environment. It becomes important to explore what is going on not between agency and structure, but between system and environment. All reflections and distinctions made by a system are possible only through the operation of system’s observation (Luhmann, 2002a):

- **the first-order observations** are the ones when the distinction between the system and its environment is made, so the difference between these two is detected;
- **the second-order observations** deal with the selection and further inclusion or exclusion of the elements in the system (categorization), so the focus is on how this process of distinction is made.

For example, “legal system distinguishes itself [first-order observation] by the process that evaluate everything in terms of what is legal or illegal [second-order observation]” (Gershon, 2005, 102). During history, this process became more complicated and sophisticated; it included various additional terms including “theory, knowledge, and science” (Luhmann, cited in Gershon, 2005, 102), but the very essence is still about making a decision based on legal-illegal principles which are the core of the legal system’s function. While a more detailed description of how one can use these two types of observations for empirical material and how Luhmann’s theoretical concepts are comparable with some ethnographical techniques is discussed in Chapter 3, this chapter continues with an explanation of some theoretical views from system’s theory in regards to observations.
Borrowing terminology from the description of neurophysiological processes of visual perception\textsuperscript{18}, Luhmann (2002, 136) talks about the blind spot\textsuperscript{19} ("means by which things become visible or non-visible") of first-order observation. It indicates the incapacity of the observer to notice the very distinction (in other words, which difference is used to split the world into system and environment) during the observational process. Nevertheless, the observer has a capacity to perceive what was distinguished. Thus, the distinction stays unobservable itself, but helps to perceive separate sides of an observed phenomenon. Within Luhmann’s theoretical framework, first order observation consists of two steps (Luhmann, 2002a):

- *distinction*: a system should always divide everything around into what belongs to itself and what belongs to its environment, and;
- *indication*: after setting the border between the inner (marked) and the outer (unmarked) space, the marked space is named.

Keiding (2010, 5) brings an example of a possible observation from the education field: “[a]n observation that designates a student as skilled [marked space] cannot simultaneously observe that it uses the distinction skilled/un-skilled, nor what it cannot see in using this difference, or that another difference will produce different information about the observed object.” Such operations as observation of distinction, observation of unobserved and observation of potential differences mentioned in this example can happen only during second-order observation, which reveals not only who was an observer and what was observed but also how the observation was carried out.

Second order observations do not bring the observer closer to the observed. Though; what they do instead is that they “allow for observation of how cognitive reality became visible, came into being” (Ibid, 6). Transparency becomes a necessity for the observation process carried out from the Luhmanian perspective. Keiding (Ibid, 10) indicated few contributors being able to increase such transparency: a) a decision of what should be observed and from which system; b) an indication of conditions for observation: when something becomes relevant to the observed phenomenon and what constitutes the description of the phenomenon; and c) a continuous choice of what to observe.

\textsuperscript{18} The ideas and discoveries of a biologist Humberto Maturana affected and influenced Niklas Luhmann’s thinking. Marutana showed that visual perception works on the perception of differences, not on the perception of certain qualities. Based on the mechanism of how inhibitory synapses work while perceiving the boundary of a dark object (how the dark object’s edges become seen), Maturana proved that the ignorance of the outer world, not the world itself, supports perception which is then transmitted via a network of neurons. The unperceived or the other side is a necessary condition for visual perception to happen (Antonovsky, 2007, 15-16).

\textsuperscript{19} “The blind spot is the area on the retina (where the optic nerve comes together and exits the eye to transmit information to the brain) that does not contain any photoreceptors. This causes a small gap in the visual field and so any image that falls on this region will not be seen” (Visual perception and illusions, lecture notes L1, University of Birmingham)
The constructivist epistemology based on ideas of Luhmann, Bateson, Marutana and Varela concentrates on “the participant observer as observer, i.e. on the differences through which he or she produces, or should say invents, empirical reality” (Keiding, 2020, 5). It is only through the distinction which is made during the process of observation that the emergence of the observed becomes possible: “human individuals and social interaction are not observed as they are but shaped or created through the selected distinction” (Ibid, 4).

Reality exists, but knowledge about it refers to the observing system.

Keiding underlines that this epistemological approach should not be confused with what Sanjek (cited in Keiding, 2020, 4) defines as “close reflection of the world” and “creation of the world”. These two approaches (direct realism and constructivism in a tradition presented by Lukman) concern the degree of re-presentation when it comes to observation – whether “it captures the world as a whole or creates the world by extracting selected segments” (Ibid). For Luhmann, re-construction is not only about the extraction of segments, but also about the discovery of distinctions used during the observation process. The distinctions which systems use for observing themselves and that is how they come into existence.

As noticed earlier, the feature of modern society is its historical differentiation into several subsystems while each of them organizes itself internally and externally in an autopoietic manner. In general, “autopoietic systems are systems that produce elements out of which they exist by means of a network of these elements themselves” (Vanderstaeten, 2000, 7). An autopoietic system is also a system which is able to observe the difference between itself and its environment. Luhmann reserved the autonomous mode of reproduction from originally a biological concept, which was applied to a living system, not to a social system. His interpretation of autopoiesis led to a sharp distinction between meaning and life as different kinds of autopoietic organizations, and meaning-using systems again have to be distinguished according to whether they use consciousness or communication as modes of meaning-based reproduction (Luhmann, cited in Vanderstaeten, 2000)20.

This quotation demonstrates not only the differences between human beings/individuals (living systems) and society (social system), but also indicates the distinction which Luhmann makes between the meanings for these systems: it is a consciousness for human beings and communication for the system. Both systems use language for its own purposes: consciousness (based

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20 Luhmann’s distinction of living (human body), psychic (human psyche) and social systems faces no problems in setting or describing the system’s boundaries (the core issue of the case with biological living systems). Since the unit of Luhmann’s social analysis is communication, a systems’ analysis could be done in application to communication by using methodologies, proposed by the biologists Varela and Marutana. Nevertheless, a criticism of the application of the concept of a living system towards a non-biological system with the question of visibility of its autopoietic nature is vital for some researchers (Herting and Stein, 2007, 12-13).
on thoughts and perceptions) cannot be or think outside of language categories; besides, language serves as a media for communications. Nevertheless, these two systems have different dynamics inside each of them: thoughts follow thoughts in a consciousness system; spoken words follow spoken words in communications (Antonovsky, 2010, 33). Social systems accumulate meaning in their autopoietic way of reproducing themselves and shape their own communications by selecting specific codes.

For instance, the education system has a specific purpose – a cultivation of its objects (not to confuse with a notion of social objects), human beings. One should note once again that in contrast to the traditional sociological view, in system theory individuals are environments for the system, not actors or producers of a social order. The complex project of education with no clear object-subject definition (who sets the educational goals: politicians, developmental specialists, parents, educators? (Qvortrup, 2005)) relies on “contingency formula” which “formulate the sense of unity” of the system (Luhmann and Schorr, 2000, 394). In case of the education system, such a formula is cultivation, establishment of educational goals (Luhmann and Schorr, 2000, 21). Due to this formula, cultivation, in spite of roles or the active participation of different actors (as could be seen from the agency perspective), the education system produces, reproduces (self-organisation) and distinguishes itself from other systems, such as political or legal ones, for example.

**Systems theory and play**

While developing, systems become more and more differentiated. Each system develops symbolic communication media with a binary code which angles the way the system observes itself and makes a selection of the elements to include/exclude them in the system. Such a code or media does not always constitute communications, but it makes communications easier, “[e]veryone knows what is being talked about and therefore does not need many words” (Qvortrup, 2005, 14). For instance, if we follow Härkönen and consider pre-school as a system, then one of the important symbolic communications in pre-school system links to play and learning. This brings us back to the discussion of categorizations started by Russel’s (2011) “pedantic distinction” between play and playwork or play service. Younquist and Pataray-Ching (2004), being also pedantic in this distinction refer to “play” as existing outside of school settings and “inquiry” as existing within a curriculum “to help laypersons understand the rigors of children’s play within an educational context” (172).

Younquist and Pataray-Ching propose to use play and inquiry for some specific goals within the educational environment. This might be contradictory to the vision of play and learning as unseparated dimensions within ECEC settings (Samuelsson and Carlsson, 2008); however, from a systems perspective, such a distinction is valid and useful as the difference then would then become
clearer. A playing child (living and psychic systems) from the children’s perspective deals with play, but seeing from the perspective of educational (social) system, this play becomes an inquiry since the latter system is mostly interested in educating the child.

As any other functional subsystem education has communication as a basic element and meaning, education tends to “influence and improve the functioning of psychic systems” (not necessarily children), the ones who have consciousness as a basic element of the system (Vanderstraeten, 2000). When the term psychic system appears one can remind that this notion is different from living system and on the top of this when Luhmann talks about persons they are “defined as a social phenomenon attributed to “individual psychic systems”” (Buchinger and Scott, 112).

According to Luhmann, psychic systems are closed; “humans cannot communicate; not even their brains can communicate; not even their conscious minds can communicate. Only communication can communicate” (Luhmann, 2002, 169). This closure is an important driver for communication, as this becomes the only way to become structurally coupled to any other system. Moreover, systems exist while there are communication events. In turn, communications (communicative events or communicative interactions when it comes to the face-to-face level) is a way for living and psychic systems to participate in a social one. “Interaction systems” (face-to-face communication) constitute “the minimal form of realization of social relations” (Buchinger and Scott, 112). This is the level of communication, which is empirically explored by psychologists (developmental psychology’s system view on play will be introduced in the next subsection).

The process of play as a communicative event between players could be described by elements of Luhmann’s theory. According to it, communication emerges when three selections have occurred: information, utterance (message) and understanding. This union of selections is unseparated; the first follows with the second and ends with the third. When talking about the playing process, communicative interaction might take place as follows: the initiating player(s) selects what to play (type or form of play), then the player(s) presents the selected information in verbal (acoustic) or non-verbal (with a body language) form. This is an utterance/message to another player(s) whose turn it is to participate in the third phase – understanding. The latter happens only in case the player(s) get the information from the utterance (there is a space for misunderstanding as well). The success of communicative interactions at the face-to-face level as well as at the educational system level is not guaranteed (Vanderstraeten, 2000, 18) since the player is also selecting at the third phase (understanding). The refusal to understand/to play/to be educated can be a selection. Then, a new communication unit emerges based on traces of the previous one – it starts from understanding which becomes information.
From a Luhmanian perspective, the players themselves represent the environment, and communication events occur within systems, not within environments. When Luhmann excluded individuals from the sociological unit of analysis (but not from the society!) it gave a new perspective on individuals and their bodies being attributed to different systems to different extents and in different situations. While persons are defined to be a social phenomenon for which the psychic system becomes an environment and does attribute to, play might represents another social phenomenon to which all systems (living in a functional play, psychic in a symbolic play, social in a cosmological play) could be attributed or remain environments (Fig.2).

The above communicative event of play refers to the micro- (psychic) level in Luhmanian terms. To think play through the macro-level appears to be a difficult task, which connects us to defining play as a subsystem of society. However, it shows an interesting direction towards future investigations of whether it can be a system similar to Art being a social system (Luhmann, 2000) and having a very special type of communication – with the use of perception instead of language. One can consider play as a system where consciousness as a meaning of the psychic system stays at the boundary with social systems using communications as a meaning. Then, the questions of how play-as-a-system was formed or how did it differentiate itself and from what would stay in focus within a Luhmanian system theory framework.

![Figure 2](image-url)  
*Figure 2.* Types of self-referential autopoietic systems in N.Luhmann’s systems theory with their possible attributions to play. Adapted from Luhmann, 1986.
Nevertheless, within the Early Childhood Education and Care field, the proposal could be as followed: if play is seen as a system in Luhmannian terms, then its first order observation would include a distinction between play and inquiry, while Pedagogy of play would have a reflective function within this system. According to Luhmann and Schorr (2000), first, Pedagogy in the education system started from being oriented towards and based on traditional values, then the reflective function of Pedagogy (while observing the environment and justifying itself) made it unsure of itself; that is how Pedagogy developed into a scientific discipline. Examples of this are vanishing teacher’s colleges and the appearance of Pedagogical Universities in Denmark (Qvortrup, 2005) or teacher’s seminaries disappearance and the embodiment of teachers’ education into universities in Sweden (Erixon Arreman, 2008). What Luhmann and Schorr highlight in their theoretical research on the education system is that (similar to Luhmann’s idea in general about the unit of sociological analysis) “education’s self-descriptions focus too much on subjects (teachers/parents, pupils/children) and too little on communication and social interaction” (Vanderstraeten, 2000, 141).

Thus, in line with the above general case of education and Pedagogy, we can view play as a system and Pedagogy of play with its reflective function operating within the play system. It then would open up possibilities to explore communications and social interactions or alternatively to describe the attributions of the different systems to the play phenomenon and discovering the communicative interactions between the phenomenon and the system. This would bring a new angle for first-order reflections within pedagogy of play that calls for reconceptualization of the field (Rogers, 2011). There is a great level of compatibility of Luhmann’s theory with dynamic systems theory as they share many common concepts. Similar to the possibility demonstrated by Buchinger and Scott (2010) when writing about a synthesis of two theories (by psychologist Pask and sociologist Luhmann), we see the theoretical fusion of the Luhmanian concept of communicative events (top-down) and the dynamic systems concept (bottom-up) as a fruitful platform to research play and its dynamics within ECEC settings.

Illustration III Play as autopoietic/self-producing system

Gulden (2015) provides a theoretical analysis of play and autopoietic or self-producing social systems in order to define systems of expectations emerging towards games and to find general properties that create feeling of pleasure while playing. Football serves as an illustration of Gulden’s theoretical discussions. I cite this example to illustrate previous reflections on what the process of play as a communicative event can be. Gulden describes football as a self-organised system or a social system of interaction in Luhmannian terms. Based on the idea that communication is not only contextualized but is also built upon the “eventualities, decisions and expectations influence by the social system prior to and as it happens” (Gulden,
Gulden tries to show the emergence of a system of interactions during a football match.

As Gulden notes, when a defender has a ball and s/he is in the process of making a decision how to score, the decision is to be made according to the very present situation and possible eventualities of what the other players may think, choose to and be able to do. He brings various possible options or directions which the game can take; for example, the movements of fellow players might change the decision of the defender about a pass or a strategy to use. At the same time, the players of the other team also make decisions based on this ongoing strategy and previous knowledge (who has the ball, which special position s/he has, what are this person’s skills – is s/he good at shooting from distance, then one should block or decrease the possibilities for the player to score).

Communication (mostly non-verbal) and flow of information among players with regard to “movements, prior movements, knowledge and expectations” continue during the whole match and “social system of interaction occur via the contextual setting consisting of specific players on the field, historic experiences, planned tactics, cheering of the spectators, place on the field, etc. Thus, the emergence of this social system of interaction is recursive, self-produced and autopoietic in the given situation” (Gulden 2015, 2115).

Gulden’s analysis of a football game through a system perspective helped him to define several dimensions of play regarding pleasure:

- **expectations of expectations** links to continuity of communication event and it is also influenced by the personal expectations of the players when one expects the other, expecting the first one to do something – so the game keeps on going or self-produces itself;
- **planning** in a situation of a system of self-producing interactions is connected to the next actions being based on the history of the previous ones. Gulden compares such a planning with thinking in chess: “one considers the movements and tries to foresee the potential movements of the opponent, and then, based on experience and the present communication, lays a strategy for an attack” (Ibid, 2117);
- **artistry** represents a dimension which might be in opposition to the previous dimension, planning, but instead has more connections to the next one – surprise. It is because of the latter that some artistry is often performed during the game aiming to cause perturbation in a communicative system.
- **surprise** in Gulden’s interpretation relates to the situation when there was a lack of ability for planning due to misinterpreted or mistaken expectations. The example of such a surprise is about a special tactic used by the players of the Norwegian team for several years until it lost the sense of surprise for the opponent teams learnt this tactic; then the notion of surprise disappeared.
Gulden (2015) presents an interesting view on games via systems theory. It has no connection to children’s play or their development, as the early childhood educational field would like to see it to be able to accommodate or use it somehow for its own purposes. Nevertheless, it is a rare example of thinking play in its form of game (which is play with rules) through Luhmannian concepts. The intersectionality “between the unknown and expectations” creates a possibility for pleasure, challenges and flow to arise according to Gulden (Ibid). It can be interesting to know though whether there is a difference between game and play from the system’s perspective and if so, which dimensions would these two have in common or in opposite which ones would be different.

Variations of system theory: Dynamic systems approach

For the reason that this subsection includes a general theoretical overview of dynamic systems for the reader, it is named an approach instead of a theory in order to underline its transdisciplinary nature. As the example of Niklas Luhmann’s theory demonstrated, systems theory got its name in Germany as a way to distinguish the sociological nature of it and to separate it from a field of cybernetics (Herting and Stein, 2007). We switch to the dynamic systems theory term later in the next subsection by following researchers whose interests are in particular about children’s play; up until then dynamic systems is presented in forms of approach or arena, which “can be considered a field of inquiry rather than a collection of specific disciplines” (Lazlo and Krippner, 1998).

Porter and Cordoba (2009) distinguish three broad approaches to systems thinking: functionalist, interpretive, and complex adaptive systems, providing a set of ideas and pedagogical tools for management educators and describing each of these approaches and its possible application to pedagogical practice for sustainability. All three approaches are not mutually exclusive; nevertheless, they do have particular focuses and various underpinnings. Functionalists see systems as consisting of different parts which can be studied in isolation and then the sum of the parts would represent the whole. An interpretive approach concentrates on holistic ideas, where the whole is greater than the sum of its parts, refusing to accept that a system can be manageable by means of linear equations. The dynamic systems approach shares the same conceptual foundations with complex adaptive systems and it is often mentioned as the complex dynamic/dynamical systems approach (Koopmans and Stamovlasis, 2016). What are the main ideas included in this approach?

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21 Porter and Cordoba (2009) include two systems traditions under functionalism; the one of Taylor and the other of Bertalanffy and Parson.
Fenwick et al. (2011) refer to “complexity theory” as an arena which can serve as an inclusive term to embrace the transdisciplinary features of the “theory” (the authors have inverted commas for the word). Many of these features trace back to general system thinking and its evolution which affected the arena. Fenwick et al. agree with Alhadeff-Jones (cited in Fenwick et al., Ibid, 20) about indicating three generations of complexity theory in which the focus was:

- on the description of organized complexity – how systems process external information for their own adaptation (for example, first-order observation in Luhmanian systems with a process of distinction and indication);
- on the understanding of the non-linear and unpredictable behaviour of systems: during this period Maturana and Varela worked on autopoiesis in biological systems; Prigogine discovered how change occur via “amplification of random fluctuations that bring the entire system into a new state of dynamic stability” (Ibid) in chemistry; Luhmann was writing on self-organization of the systems in sociology etc.;
- on mapping systems’ variations which initiated a complex way of self-organization; a concept of “complex adaptive system” appeared during this period (late 1980-s).

The theoretical characteristics of Dynamic systems can be found in many disciplines as mathematics, physics, chemistry, neurophysiology or psychology to name a few. It also grows and develops in the field of education (Koopmans and Stamovlasis, 2016). However, it is still hard to describe a dynamic systems approach as a unified theory, which for instance has a shared terminological apparatus for many scientific disciplines. For instance, Jörg (2016) talks about the necessity of developing a new framework to look at system behaviour and introduces a new term generative complexity with applications in the education field. Generative complexity as a concept that “integrates and unifies dynamic, generative structures with generative process” (Ibid, 65) might help in developing of a theory of generative change which should aim at “organizing complexity as the fount of generative change, creativity, and novelty in education” (Ibid, 60).

Dynamical systems, complex systems, chaos theory or the theory of generative change these are several examples of the names for an approach applied in various disciplines that has many analogous views and concepts in common.

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22 Bloom (2016) noticed that development of complexity science in education and sociology shows the direction towards becoming an established paradigm which complexity science might soon become. Based on Kuhn’s concept of paradigm, Bloom (Ibid., 25) includes values
What often unites all different examples is *complexity* involved in the systems – the sum is always bigger than its parts, and “the multiple interconnected processes cannot be explained separately from everything else” (Bloom, 2016, 27). All the variations alone with illustrations presented in previous subsections also emphasizes *connectivity* as elaborated in system thinking (e.g. Härkönen’s ECEC system). *Self-organisation* (pp.46-47), which a subsection about systems theory explained, characterize complex systems and can be found interdisciplinarily too. The concept of *emergence* connects directly to *self-organisation* during which novel patterns and structure appear, generating an internal variety that leads to the system’s evolution (for example, the educational system’s emergence and its historical development in Luhmann).

Thus, the main important concepts have been introduced previously; however, before getting directly to the view of play within a dynamic systems framework and presenting some specific theoretical features of this variation, one should mention two important considerations.

The first consideration is rather obvious, but important, it is about a division of systems into artificial and natural systems. The former includes ecological, biological and social systems (individuals and communities participate in them); the latter are mechanical systems (which can be rather complicated, but not complex since they are not autopoietic). Certain “general propositions are true of natural systems, regardless of their size, origin, and degree of complexity, which may not be true of artificial systems”, also natural systems might be distinguished from “entities which obey the statistical predictions of entropy production dictated by the second law of thermodynamics” (Lazlo and Krippner, 1998, 52).

The second consideration is about the methodological distinction of theoretical and empirical systems (Lazlo and Krippner, 1998, 51):

> [t]he former is a complex of concepts, suppositions, and propositions having both logical integration and empirical reference, while the later is a set of phenomena in the observable world that is amenable to description and analysis by means of a theoretical system.

Similar to critics of Luhmann’s theory in which he applied a biological concept of autopoiesis to social system, many attempts to apply theories describing processes in the natural world to the socio-cultural domain have been criticized. As Fenwick et al. (2016, 31) notice, this can be connected to the fact that the application of complex system’s to social issues often happened with

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and assumptions of a worldview, theoretical and conceptual frameworks, philosophical frameworks, research methods as well as practices and discourses to be aspects of expanded understanding of what paradigm is.

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23 Entropy is a measure of disorder in the closed system and it depends on number of states which the system can perform; so according to the second law of thermodynamics, the entropy of the closed system is always increasing and there is no possibilities to stop or to decrease the entropy.
the help of a metaphor of complexity widely used in organizational studies and in education in order to develop some tools for facilitating leadership and change at an organizational level. Abstracting concepts of complexity and then applying them to human systems in a simplistic way, for instance constructing “a set of rules and then apply[ing] them as predictive models for emergence” (Fenwick et al., 2016, 32) remain in a mechanistic thinking domain (Bloom, 2016, 32). Fenwick et al. (2016, 33) bring in a work of Osberg and Biesta (2007, cited in Fenwick) as an example of an out-of-metaphor way to approach complex system of education, in which they try to move away from patterns of actors and actions, but concentrate on “enacted knowledge” which emerges as we participate in the world. This is comparable to what Luhmann articulated in his theory when the focus was moved from actors and agency to communications of the systems, which were also not a metaphor but empirical reality invented by the observer.

Keeping in mind those complex ideas about what is natural dynamic system, we can proceed to seeing how this approach can be applied to play of newcomer children and which possibilities it can open up for. The very name of the approach indicates that dynamics is in the focus, and this is something that newcomer children experience to the highest degree during their transition between countries and systems.

Dynamic systems theory and play
Being one of the most recent theoretical perspectives on play (Bergen, 2015), dynamic systems theory (DST) sees play as a complex dynamic system. DST deals in particular with dynamics in these systems. In van Geer ts’ (1994) words, a dynamic system is a set of variables that mutually affect each other’s change over time. This might appear as a very technical explanation; nevertheless, it indicates the core idea of change over the time. According to several variations of DST including chaos and complexity theories, a distinctive feature of a dynamic system is nonlinearity: there is no single causality involved; an input may cause a non-proportional output (VanderVen, 2015). Therefore, DST explores “the relationship between predictably unpredictable phenomena” (Fromberg, 2006, 165). A dynamic system is also based on a notion of complexity and the ways in which a system deals with it: by reducing such a complexity to manageable operations.

The aim of the dynamic system[...] is to try to capture the basic dynamics of a phenomenon in its most essential form, that is, by reducing the complex world to the minimal set of essential components that are necessary to explain, i.e. generate characteristics from the dynamics (van Geert and Steenbeek, 2004, 3).

There is an important distinction though between structural approaches which examine playing behavior itself - how various types of behavior are organized
and described – as well as deal with play signals (Smith, 2010, 5) and a DS perspective. As Luhmann (1986, 174) noticed, “structure does not produce an event. It is the network of events which reproduces itself and structures are required for the reproduction of events by events”. So in contrast to how structural approaches see play, in the system view play is not produced by play signals or essential components, it is a network of these components, emerging and reproducing themselves in a dynamic way.

The way in which development psychologists approach play within DST may vary. Bergen (2015, 117) sees psychological research on play as being impacted by brain research and DST. Bergen (2010) talks about brain development and play as complementary non-linear processes in which each of these two systems’ components are interconnected and they affect each other resulting in complex interactions. Fromberg (2010) while describing access to meaning in a context of learning talks about play as a condition for meaningful early learning. Therefore, play becomes the environment that affects meaning and Fromberg (2006) approaches these two processes from a non-linear dynamic theory perspective. VanderVen (2015) focuses on the play itself to see the function of play as a complex adaptive system that develops as children grow.

To explore non-linear processes and the phenomenon of play, these authors have used variations of system theories (DST, chaos theory, script theory). The authors spend considerable space in their work to introduce the terminological basis of a system theoretical framework. Scholars underline some particular elements based on their research interests, but there are still many similarities that can be found between terminologies and concepts from DS theories’ vocabularies. Some significant system features of play are similar across different variations of system approaches, demonstrated by the researchers. As we are particularly interested in play itself as phenomenon and a DS approach to it, the next step would be to present play from a DS perspective.

Similar to any systems’ intention of reducing complexity, we try to draw out some of the core elements and concepts of play (VanderVen, 2015) which could be listed as:

- **Self-organization**: “there is order in chaos”, Goerner cited in VanderVen (2015, 407). Re-emergence of a turbulent system into an equilibrium one takes place during self-organisation. “Let’s play a helicopter pilot” – then a sofa becomes a helicopter with a basket being a helmet, the place is organized and subordinated by certain rules, suddenly appeared. It is not a sofa or a basket that served as signals for a play to emerge. It is an arising network of various components including a sofa, a basket, imagination,

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24 Consists of the interconnectedness of emotion, cognition, motivation, attention, experience, perception (Fromberg, 2010, 51).
and playing mood of participants to name a few. This network emerges, organizes and reproduces itself within the limits of its life span;

- **Phase portrait/phase space portraits** in VanderVen (2015, 407)/*state space* in Safarov (2009) and Hollenstein (2007): geometric representation of the dynamics of a system where all possible states of the system can be mapped. The phase portrait is a portrait of a life span of play. The phase portrait includes a minimum of two mutually exclusive and exhaustive phases or states such as the existence /non-existence of play as a system. In the above example, two phases can be: 1) “a helicopter and a pilot’s helmet” play phase when play emerges and develops and 2) “a sofa and a basket” non-play reality phase when there is no play. The geometric representation of the dynamics of play could be shown in different graphical ways: as a landscape or as a table of variables. Both examples are presented within the text: play dynamics as a landscape (Fig.3, p.60) and play dynamics in a table of variables (Fig.9, next chapter);

- **Attractors and repellors**: spaces or phase portraits that drive a system into certain behaviour. So there is a play emerged from chaos, and then the play dynamically moves through its various phases (minimum two) during its life span; in addition the play behaviour depends on those phases/state spaces to which the play tends to return (attractors) or which the play tends to avoid (repellors).

With the help of a landscape graphical representation of the dynamics of play, we can visualize concepts of attractors (also called basin of attractors) and repellors. The landscape symbolizes the phase portrait constructed on the basis of observed play during the specified time\(^{25}\). A common way to show a system’s behaviour is to associate system movements and its dynamics with “the movements of a ball over irregular surface” (Kunnen, 2012, 23; Hollenstein 2013, 15). Imagine play/playing interactions to be in a form of a heavy marble ball rolling through the landscape. Then the hills (repellors) are the places where play does not stay for a long time since it is heavy and round, while in the basins (attractors) it tends to remain longer; the deeper the basin, the longer the ball stays there (Fig.3, see next page).

What is there on the top of the hills or inside the basins that affects dynamics of play? Various reasons and elements can be involved in formation of attractors and repellors. For instance, several contributors to basin of attractors or repellors can be listed resulting out of data from the interviews with newcomer children or out of observational data.

Bergen’s description (2015, 118) appears to be a good entry to introduce play as a dynamic system. According to her

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\(^{25}\) One should note that each landscape is built on the unique interactions, so the landscape involving participants A and B can look differently from the landscape of playing interactions of participants C and D.
[p]lay is a self-organizing system that may appear chaotic but moves towards order, involving spontaneously emerging patterns of attractor (stable) states. Play involves phase shifts, which are abrupt changes in play patterns that lead to higher levels of play.

Depending on the level of investigation and on the time perspective, these higher levels can be new types of play developed through childhood, for instance the development of role play on a longitude scale or switches from one form of play to another one when parallel play becomes cooperative play on a real time scale, moment-to-moment basis. The research purpose defines a scale to fit the examination of play – a year, a month, a day or a particular playing activity. “[T]here is no scale that is the scale” for studying play emergence, its change or its particular aspects, the interconnectedness of timescales is more important, if the focus is on real-time playing interactions, then measurements should also be applicable for tracking longer term processes and changes in these interactions (Henry, 2016, 295).

![Phase portrait/state space representation of playing interactions as DS](adapted from Henry, 2016)

*Figure 3. Phase portrait/state space representation of playing interactions as DS (adapted from Henry, 2016)*

It is quite common to present two most influential theories (constructivism and socio-cultural theory) about play within the Early Childhood Education and Care as a nature-culture dichotomy in which a Piaget natural child is pre-
presented in opposition to a Vygodsky cultural child. The play of the former happens within a child “as unfolding biological development”; the latter has a “motive for play as cultural development” (Fleer and Peers, 2012).

Jean Piaget, a cognitive theorist, is well known for his children’s development theory in which the cognitive and emotional development of an individual has several stages. The cognitive maturation process affects the type of play children are able to perform; thus, she is able to play according to a certain age; for example, during the second year of life, children’s play starts changing its’ exploratory form (manipulation of objects) into a symbolic one (pretending or dramatic play). Play then exists in a tight connection with the developmental process occurring in a child. It is a form of representation of the world based on the understanding of this world by the child. She plays in order to make sense of her experience and cope with the surrounding world. There are two processes in an individual’s development underlined by Piaget: the assimilation of new knowledge and experience and the accommodation of them into already existing and internally organised schemas (cognitive and behavioural patterns). Play is characterized by a predominance of assimilation: “use of the phenomenon for the pleasure of the activity” (Piaget, 1962, 92) and it is a natural part of children’s development.

Lev Vygodsky, a socio-cultural theorist, emphasises play being more socially grounded; so he is focusing more on cultural rather than biological or natural influences. Children’s play develops depending on cultural goals expected and decided by the local community. Play also serves an important precondition for development of abstract thinking (one of the most famous parts of the Vygodsky lecture on play (1933 [1976]) contains an example of a child playing with a stick, which replaces a real horse in the process of detaching the meaning. Vygodsky considers the relations between play, perception and language to be essential, thus play itself is a vivid component in individual development. What play lies within socio-cultural theory? It is a leading activity in the life of children; it is situated, dependent on the context, constructed from knowledge of the local community so it is not only natural, but also a cultural part of children’s development.

The DS perspective alters the previous paradigmatic borders in studying phenomena since the focus moves to emerging processes, and then the research questions which are asked have different nature. If we talk about play, it is not a question about a Piagetian process of assimilation/accommodation vs a Vygodskian culturally mediated activity, but a question of how play emerges and how to understand its dynamics.

Illustration IV Dynamic system’s modelling of children’s play
This illustration uses the study of Steenbeek and van Geert (2007) in which they constructed, validated and applied a dynamic systems model to the dyadic play of young children. Before presenting this study, it is important to
share some information about the researchers and the approach, which they represent within dynamic systems developmental studies.

Henderien Steenbeek defended her thesis on modelling dyadic child-peer interactions during play; her other research interests include children’s learning processes. Paul van Geert has a pioneering role in the application of dynamic systems theory to various developmental areas such as early language development, cognitive development under learning-teachers process or social identity development. Both of the authors work at University of Groningen in the Netherlands and due to this fact, the approach, which they and their colleagues practice in the research is called the Groningen approach (organisism). A specific view of contributors to this approach concerns avoiding a description of complex human behaviours in the form of a metaphor; instead, the study of developmental processes includes three main characteristics (Kunnen and van Geert, 2012, 5-7):

- long-term development can be observed on a short-term time scale in the form of events of person’s actions;
- the level of investigation is an individual one, with the focus on the system itself, not on aggregations over systems (e.g. mean values over groups);
- the processes of change in development are complex; however, this complexity can be reduced to “a few variables of interest not because […] these variables are the essential ones and the others just superficial, but because […] in the variables of choice the complexity of the system is in a sense preserved and represented”. What is important in a process of a choice of variables is a tight connection to theoretical ideas.

While Kunnen and van Geert (Ibid) emphasise that apart from these three characteristics another important feature of the Groningen approach is the use of quantitative methods; van Vondel et al. (2016, 227) talks about Steenbeek’s research as the one belonging to “soft” type. The later connects to qualitative features of a complex dynamic systems view on education (e.g. “research on learning that focuses on individual trajectories and on individual variability, on the transactional and iterative nature of the teaching-learning process”.

26 This organismic approach differs from the Bloomington approach (contextualism) developed by Thelen and Smith (2006) who saw dynamic systems theory as a special theory of embodied action. According to this variation of DST, agents are active systems, whose actions take place “in the context of the here-and-now” and connect to continuous loops of perception and action (embodied-embedded action). Thelen and Smith’s DST particularly focuses on “spaciotemporal action at a relatively early age”, and such a focus is a limitation of this particular approach (Kunnen and van Geert, 2012, 6). This work does not aim to compare two approaches or give a detailed description of them, so given information has a very general description.
etc.). In contrast to the “soft” type, the “hard” complex dynamic systems approach deals with dense time series and uses quantitative analysis for the modelling and reconstruction of models.

The study (Steenbeek and van Geert, 2007) which is used in this illustration describes a stimulation model and is an example of the harder type of research. Focusing on the third characteristic of the Groningen approach – the decreasing of complexity to manageable units – one of the study aims is to obtain “insights in the course of the process during a particular interaction in real time” (Ibid, 107). The study provides a very detailed description of three steps made by the authors in order to construct a dynamic systems model, starting from theory construction, though modelling, and finally to empirical testing. Steenbeek and van Geert were in particular interested to check children’s play in connection to their sociometric status (popular, average, rejected). 24 dyads of children from Grade 1 (a mean age of 6.5 years-old) were selected for empirical testing of the model.

Based on the DST and on the emotional theory of Frijda, the model assumes the interrelation of child-specific factors and context-specific factors during the process of play. Steenbeek and van Geert (Ibid, 138) see “emotions and interactions no longer as a child-specific property, but as a product and expression of interaction processes” in which both child- and context-specific factors participate. According to the model, the process of playing interactions are characterised by (Ibid, 116-121):

- **concerns**: refer to a person’s identity and personality aspects, including the tendency to be or to act on one’s own (autonomy) or the tendency to direct one’s behaviour towards an other person (involvement);
- **appraisals**: the level of appraisals can be translated into a positive, neutral, or negative emotional expression of a child; the way from appraisal to expression of emotions depend on individual features;
- **emotional expressions**: when expressed and accompanied by a particular behaviour, a positive emotion for instance tends to increase the frequency of that behaviour; it will also increase the concern associated with the behaviour;
- **behaviours of participants**: the previous parameters were used to explore how playing actions connect to intentional aspects: concerns link to appraisals, appraisals to emotions, and emotions back to concerns. However, there are non-intentional aspects included in the playing process and affecting the behaviour of the participants – mirroring another person’s behaviour (not-intended imitation, connected to so-called mirror neurons) and following the dynamics of play in which each next step is a function of the previous one.

There are also additional parameters influencing the playing process such as “the attractiveness of the toys, the “scrip” of the play session and the mood”
(Steenbeek and van Geert, 2007, 121) of players. All these parameters were considered to be and implemented in the form of an adjustable factor. The given illustration reveals several important factors or parameters involved in the process of play, due to the specify of the approach, the focus lies at the individual level; however, play process includes an interrelation of personal and context factors. Comparing to Illustration II, the context factors in this illustration might stay at the smaller scale, but the combination of two can enrich the picture of what play or play process is.

The main purpose of this chapter was to present a few variations of system thinking: some are known and already used (ecological theory), some new (dynamic systems) and some almost unknown (Systems theory) for the early childhood education field. Several illustrations coming from educational, sociological and developmental studies demonstrated examples of possible applications of system thinking to play – both empirical and theoretical. There are not so many empirical studies done within the systems framework; this limited the choice of illustrations – some of them concerned only play, some combined children and their play, but up to present newcomer children’s play has not being yet extensively analysed through systems perspectives.

Fig. 4 summarizes only those variations which were described in the chapter (not all possible ones though) with some main concepts attached to each variation. One can put general system theory in the middle; for it serves as an umbrella for other theoretical approaches including dynamic systems theory which is at the focus in this work.

If we apply a personalised-depersonalised continuum for Fig.4 (p.65), then a Luhmanian system can show a direction towards post-human thinking. Meanwhile, a dynamic systems approach can stay in the middle because of its high comparability with many of variations and a flexibility of the very notion of system – it depends on the research interest and a unit of analysis. For instance, when Niklas Luhmann excluded individuals from his sociological analysis of a society, he left face-to-face communications for psychological analysis, underlining specific interests of each of the disciplines. Thus, a combination of dynamic systems’ analysis of face-to-face communicative events at the individual level with a sociological analysis at the systems level might function without conflicting assumptions under the complex systems umbrella as far as the unit of analysis is specified, and the way in which it was observed and analysed is explicitly articulated.

In Varela’s words (Humbrecht, 2006, 46): “[…] we have – within the framework of the theory of complexity and with the concept of the dynamic system – a universal key to unlock the brain, a tornado, an insect colony, an animal population, and ultimately the experience of the self”. In this project, the focus is on “unlocking” newcomer children’s play with the help of dynamic systems perspective, so the next step is a step-by-step operationalization process in order to apply this framework within empirical domain.
Figure 4. Summary of the main concepts of variations of system theory, presented in Chapter 3 with possible directions for studies of play within each of the theoretical variation.
Operationalizing Dynamic Systems approach

A dynamic systems “package” (a paradigm with a system theoretical approach and some analytical strategies) opens up a certain way of seeing and analyzing the phenomenon of play. This way includes traces of quantitative design in which several choices/pre-assumptions/hypotheses should already be made at the level of research strategy. In performing system analysis, one should start with a manifestation of a problem. Once this has been done (the manifestation has been identified and described), one can proceed to the subsystems and their environment.

One might think that problematizing is a common start for any research, not necessarily for the one under the system thinking umbrella. What constitutes the difference is the fact that one makes many clear choices long in advance: about what is the system we want to study, from which system level it will be studied, at which time scale etc. Reflectivity then stays in constant comparison and testing against many existing alternatives and the explicit explanation of why a certain choice was made. In our case, the problem is the unclear character of emergence and continuity (what keeps alive?) and the structure of play (which playing patterns are involved) among newcomer children and the research questions seek answers to contribute to the problematic topic (p.24).

Considering that the very phenomenon of play as a dynamic system is viewed as an enormous and complex network of elements, connected to each other, we would focus on some small parts of the enormous whole, namely playing interactions. It is important to notice however that this way of approaching play distances itself from the reductionist view, since within a dynamic systems perspective “the nature of the whole is always different from the mere sum of its parts” (Capra, cited in Abraham, 2003, 304). Small parts as Abraham notices (Ibid) should be always studied within contextualized whole.

Our understanding of playing interactions influenced by ideas of a system theorist, sociologist Niklas Luhmann (Luhmann and Schorr, 2000) as well as by dynamic system approach applied in developmental studies research (van Geert 2004, 2005, Witherington 2007, Thelen and Smith, 2006). It is based on the idea of systemic nesting: a newcomer child (representing a system on its own), playing with another child or adult (dyadic/triadic/etc. system of playing interactions), participating in yet another system – Early Childhood Education and Care.

There is no specific identification of what to consider as a system – according to the level of analysis which the researcher selected, this may vary from the individual or a small group (Hollenstein 2007, 394) at intra- or interpersonal levels to education or law at an institutional level (Luhmann and Schorr, 2000). Nevertheless, it is important to distinguish between these systems and understand what constitutes the systemic difference. In our case, it is the play
Figure 5. Short summary of inter-relationships between data material and various levels in the research project.
itself, which emerges during the interactions of individuals. When newcomer children become mutually united\textsuperscript{27} during playing interactions, then there is a dynamic system to investigate.

This system is dynamic since we would like to specify a relationship between playing interactions at one point in time and playing interactions at a previous point in time (van Geert, 634). Each of the children has a previous history of playing interactions. Coming from very different settings, they might play differently before, having no time, or limited space for play etc. Besides, each child carries her own embodied history of playing interactions and continue or learn new play in a tight relation to the personal history.

Fig. 5 (p.67) summaries the theoretical and methodological vision of the project in which:

- Playing interactions of newcomers are defined (Bergen’s definition, p.49) and investigated as a dynamic system;
- The changing nature of the system is constantly in a dynamic process, so the focus lies on exploring this change;
- Since one of the focuses of the project is on children’s perspectives, the empirical data collection starts with newcomer children’s interviews to explore their own experiences on play (Chapter 5), and then continues by observation of how they actually play (Chapter 6);
- Both interviews and observations are analysed through a system theory framework: an analytical tool based on the idea of communication to be a dynamic process is developed and used for interviews’ data in order to decrease adults’ influence; Space State Grid method is applied for working with data from observations. Reflections on the types of observations influenced by Luhmanian systems views complement methodological discussions (Chapter 4);
- Following dynamic systems concepts, after discovery of the basins of attractors – that is where the system spends most of the time or alternatively tends to going back – those basins (or alternatively, favourable regions where medium and high intensity of playing interaction happen) are investigated (Chapter 6) and then;
- Patterns of the dynamic systems of playing interactions, found in basins or favourable regions are tested against cues that were discovered in previous research (Chapter 2 and illustrations from this chapter);

\textsuperscript{27} Only non-solitude play is under study in this project, not because a solitude play cannot present a system (it can), but because for an external observer it is not possible to observe the play without affecting it by the presence of the observer (see more details in Chapter 4). Since children’s views are prioritized, solitude play is not included to avoid adults’/observers’ influence. Thus, mutual unity on the basis of play is defined as a system and further explored.
Operationalization of dynamic systems presented in this chapter helps us to move further to methodological and analytical questions of a study of newcomers’ play. Fig.5 (p.67) also demonstrates how each research question relates to or embraces listed above steps in the project’s design. The next chapter continues contributing to the answer to the first research question what the theoretical and methodological implications of DS approach to play among newcomer children are.
CHAPTER 4

Method and analysis – theoretical and methodological implications of the Dynamic systems approach

Chapter represents methodological and ethical considerations of doing research with newcomer children and describes the research settings and participants. This chapter also includes details of how the analysis of both interviews and observations has been done with the help of a Dynamic systems approach: first, an analytical tool specially developed in this project for analysing interviews’ data is described; second, a Space State Grid method for analysing observations is explained and presented in connection to the data material.

It is important to underline a methodological position taken for conducting the project in general and collecting the interviews part in particular, as the decisions about methodology informs and impacts methods used with children (Dockett et al., 2011, 68). The work of child scholars (mostly sociologists) including Jens Qvortrup (1990), James and Prout (1997) who have established a prominent sociology of childhood have influenced the ways to approach the present study. The so-called new sociology of childhood developed as a critical discipline of childhood studies (Wyness). As Matthews (2007) noticed “new” refers to conceptualization of childhood and contrasts the “old” conceptualization of childhood – socialization. The new sociology of childhood does not only explore the constructed character of childhood but also sees children acting as agents in their own rights within social and cultural settings (Clark and Moss, 2001). Therefore as the new sociology of childhood suggests children should be studied in their own rights. Pre-sociological child, the concept of whom was based on theological, romantic discourses and developmental theories (Ryan, 2008) gave its place to the new concept of a child as an autonomous sociological human being not becoming (Qvortrup, 1994); a child whose voice needs to be heard and accepted. When it comes to researching
children, participatory research (see for instance Clark and Moss’ Mosaic approach28, 2001) is a decent example of eliciting children’s’ perspectives within a framework of active citizenship. The framework however has an issue with subordination – ethical symmetry as a solution could represent one way to follow: “ethical relationship between researcher and informant i s the same whether he or she conducts research with adults or children” (Christensen and Prout, cited in Dockett et al., 2011, 71).

The other alternative could be child-adult binding in system terms. This binding appears interesting not only in connection to the question of nature of high dependence of children on adults, it also enlarges one of the popular discourses within the field of Early Childhood Education and Care, the discourse about child-adult dichotomy. Prout (2005, 69) noticed oppositional character of dichotomy being one of the problems in conducting social analysis and suggested searching for new ideas helpful “to include the excluded middle of dichotomies that have been made to be oppositional”. Himself he was talking about “natural-cultural” opposition in research (p.58) while looking at the child.

In his turn, King (2007) criticized the new sociology of childhood for seeing children as actors in sociological terms from his position in the field of law. For instance, he raised the question of validity and reliability of testimony of very young children in a court: since which age the law system might see children as full and trusty agents? King also touched upon the dual nature of childhood: children are given rights in modernity, but they are not able to represent their rights, it is always adults acting on behalf of children, not children themselves (it is particularly noticeable when children are young).

King (2007) suggests a Luhmannian system theory perspective, namely operational constructivism, to be a helpful tool, which allows examining child-adult relations not as a dichotomy, but a structural coupling; a binary (not necessarily dichotomous) code adult-child for instance has a functional role in educational system. For newcomer children, power relations inside such a coupling might have different dynamics from the hosting society’s family dynamics (see Paat, 2013), and also the degree to which each side of the coupling affects the structure of the communicative system they are involved in can vary. Fogel’s (1993) concept of human interactions as a continuous process system is used to explain communicative interactions (in the forms of interviews, informal conversations etc.) within adult-child structural coupling with

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28 Being an interesting way to investigate children’s views and perceptions, nevertheless this approach has limitations when researching with newcomer children – the use of photo cameras by children is one of the methods included and widely used in the Mosaic approach. This might cause ethical issues as for various reasons such as hidden identity status (condition to those who escaped the civil war conflict zones and there is a danger to be acted against from other war refugees) or religious views, extensive photographing could be forbidden by authorities or by parents among this group of children.
the focus on involvement of children and their ability to affect interactions. The interviews’ analysis part of the work further explains this concept.

As for observations, the main assumption is based on general system theory and systems’ theory views – the observer always belongs to a particular system (apart from being a system herself), by her very presence affecting this system, since whatever changes happen in the environment, the system is adapting towards these changes. As for example within educational system, where the structural coupling adult-child will always play a crucial role, the observer-observed binary would function on the mutual interconnections and any changes in one would affect the other.

The very idea that observation can be non-participating does not fit systems’ approach. The question arisen within system framework is not about a distinction between observation and participation; it concerns a type of participation (Keiding, 2010) – to which degree the observer was involved into observations. As Keiding (Ibid.) noticed a system consisting only of observed and the observer increases “the experience of being observed” in contrast to the system with several participants. This is one of the reasons why an observation or study of solitude play was not included in the project even if a playing child might be considered as a system, which includes the very child and other objects around her. Focusing on children’s perspectives, the aim was to limit my possible influence as much as possible. Another reason for not including a solitude play can be explained with ideas about the process of play: in order for the external observer to be certain if the observed does play in solitude or not, in many cases the former might interrupt the later by asking questions. This would contradict the idea of the project to explore playing interactions as a dynamic process, since such a process would be regularly destroyed.

Describing methodological issues of in situ observations, Keiding (Ibid) framed Sanjek’s ideas about ethnographical path into Luhmann’s concepts and described three important conditions for the process of observation:

- **guiding differences** “indicate what the observer is observing or is “looking for” […] reduce complexity for the observer by indicating which episodes or events in the continuous stream of events the observer’s awareness should be directed towards”;
- **system reference** connects to the absence of inherent meaning of interactions -- episodes or events gain different meaning when observed from different systems, observers can observe the same things or events, but within each system reference all those things or events would not be considered or perceived identically. As for instance, play from educational system can be an inquiry, helping children to learn, while if it is observed from the economical system, play in its different forms can represent a commodity with various financial values;
• “point of observation” links to Niklas Luhmann’s main idea about switching the focus in sociological research. It means from observing individuals’ interactions in which the point of observation refers to individuals to observing interactions “as self-referring communication, describing how communication evolves, how and when themes emerge and fade away, how participants take part and redraw, etc., without reducing the dynamics of communication to acts and behaviour of single individuals”.

In this research project, guiding differences direct the observer’s attention towards newcomer children’s playing interactions (excluding their solitude play). System of reference is switching between playing system and educational one depending on the levels of analysis performed. Started with first order observations when a simple distinction is made between what is playing interactions and what is the environment for it, then the second order observation enables to explore various patterns inside playing system. This is where the point of observation becomes particularly crucial in this project as the switch from the analysis of individual experiences of newcomer children to considering how their playing interactions emerge in self-organisation process happens. Thus, adult-child bounding with the focus on children’s side and special conditions for observations are the methodological stands within the project.

Ethical considerations

The research project got an approval from Umeå Regional Board of the Swedish Ethical Review Board (see Annex A, p. 191). The reason to seek the ethical vetting was because the project entailed sensitive personal data, which according to section 13 of the Personal Data Act (SFS 1998:204) includes information on race, ethnic origin, political views or religious conviction. It is important to underline that all projects falling under existing laws must be approved before their start as stated in the Act concerning the Ethical Review of Research Involving Humans (2003:460, incl. SFS 2008:192). As in a situation when the laws describe who is getting access to the education based on the legal status obtained from the migration board, in research which falls within the law’s description it is also the rule of law which comes first. In cases when the law’s content apply to the research, conducting such research without the approval is the breach of law and it is punishable (Hermenen, 2011, 49).

Before the start of data collection, the letters of consent were prepared for the parents, teachers, and language assistants at the preschool group since the stipulations in the Personal Data Act (SFS 1998:204) on information and con-
sent apply to the project. A head of the pre-school section and a head of municipality schools also got letters of consent, this move mostly refers to professional ethics as it was essential for me as a researcher that the community I am conducting my research in is informed (see Annex C,D,E)\textsuperscript{29}.

Since the group of children under this project is culturally diverse, those differences in cultures might carry a specific interpretation of informed consent from parents’ side. The necessary translation to their mother language cannot bring the translation of the concepts in various cultures. That is why the text of the informed consent differs from the more official liberal version for Western society and contains “a certain amount of vagueness” (Hermeren, 2011, 47). For instance the vagueness is associated with avoiding the use of official terminology and names of legislative acts which might be confusing for people who are not familiar with these documents either with their context. Each child’s parent(s) got an explanation in their native language from the language assistant, who introduced me in person, explained the information given in the letter for parents/guardians, and in the consent (see Annex C, p. 185).

The actual data collection began after teachers and language assistants’ gave their consent as well as parents’ consent was obtained for all children. Children’s oral consent was gotten before each interview for those who were invited, since children who joined the interviews by themselves or initiated the talks expressed their wish to participate by the very act of doing it. Gray and Winter (2011, 30) raised an important issue in connection to the gatekeepers while obtaining children’s assent and while conducting research with the already obtained assent. The adult-child structural coupling mentioned above at the beginning of the chapter might capture the essence of the assent the most: it is only via coupling with adults that the very idea of assent starts functioning. Those children who want to participate but do not have parent’s consent to do so cannot be included in the research.

For the children to feel more comfortable with a reduced level of unattended stress caused by people whom they do not know, the language assistants was asked to help with translation of the interviews instead of the use of interpreters’ service. It did cause some unclear moments while analysing the data, but considering ethics to have a privileged position in research with children, not on children, the presence of the language assistants (who were not yet another stranger, but very acquainted with children and their personalities) was an informed decision.

\textsuperscript{29} There are distinctions between research ethics (ethical standards as such for conducting research) and professional ethics (“the researcher’s responsibility towards research and the research community”, Hermenen, 2012, 16) when it comes to different levels for the researcher to be accounted to. It might be law system in case of research ethics (for example in case of a breach of law) or research community in case of professional ethics (for example in case of misconduct).
When it comes to the video observations, as agreed in the ethical board application, recordings of videos were only used for research purposes and no outsiders had access to them. Also in accordance with the recommendations of the Swedish Data Protection Authority, the conditions of storage and utilization of data has been met to keep source data (data collected for a research project) confidentially.

Another important ethical consideration relates to anonymity. All children’s names in the project were replaced with just alphabet’s letters. This is made not to de-personalize participants who took part in the project, but to keep their anonymity. Because it is often that while replacing actual names with fictional ones, the researchers try to keep an ethnic flavour. In this project due to various reasons including the one, which aims at avoiding stigmatization, an extra protection is given to ethnicity of the participants by not using any fictional names.

As noticed by Hermeren in Good research practice (2011), one of the necessary conditions for a balance between risk for participants and benefit for research is the appropriate method, which leads to answering the research questions without precedence over the wellbeing of research participants. As Hermeren notices (Ibid, 49): “[t]he research project cannot be approved if the expected results can be reached in another way that presents fewer risks, for instance using other categories of research subjects or an alternative design”. Methods, chosen in this research project aimed at answering each research question as precisely and with minimum risk for participants as possible (see more details in Procedures’ subsection); the received ethics approval confirms this statement.

Participants and setting

The research data was collected in a group of a preschool section of a center for newcomers (available for children aged from one to six years old). At the time of empirical study there were 13 children registered in a group, an average number of those who attended the group on a regular basis were around ten children. Most of the children’s parents were attending language lessons at the center, so the children’s attendance was highly correlated with the time-tables of adults’ language classes, for example, Friday had a very low or zero attendance of children because there were no adults’ classes scheduled.

Each child’s history of migration was unique, varying from being very newcomers to having stayed in Sweden for some time (nevertheless due to the often relocations did not yet obtained a place in an ordinary preschool). Eight children (n8) with Syrian, Iraqi, Eritrean and Palestinian backgrounds at the age ranging from three years five months until five years ten months (as it was at the beginning of the first round of interviews) participated in the interviews.
The children’s spoken languages included Arabic (Syria, Palestine), Kurmanji (Syria), Sorani (Syria), Hawrami (Iraq), Tigrinian (Eritrea) and Swedish.

**Interviews** The interviews were conducted in Swedish with the help of the language assistant(s) working permanently at the site, so children were familiar with the assistant(s) and knew this person since their first day in the group. The majority of the interviews were held with the help of one language assistant who was a native Kurdish speaker with some knowledge of Arabic. The assistant originally came from the border area of Iraq and Syria, so this person was able to communicate in Hawrami (a distinct dialect from Northwestern Iranian language, affected by Kurdish dialects) as well as in different Kurdish dialects (Sorani and Kurmanji). One interview was held with the help of another assistant who was a Tigrinian native speaker.

The level of participation or involvement of each child varied depending on her wish to participate: group interviews had a tendency of having two phases with different number of participants. Getting children’s consent at the beginning of the interviews however did not mean that children would like to stay for the whole period of interviews. Average length of a group interview was 15 minutes (recommended length for children of small age, Cohen et al., 2011, 435); the individual interviews were often shorter. Collected data includes approximately two hours (108 min.) of recorded interviews plus detailed field notes of one natural conversation in a field and field notes of one erased recorded interview. Table 2 (p.80) has a detailed description of age and sex of each of the participants and their involvement in each round’s sessions.

Involvement of a language assistant might raise questions about translation’s accuracy. For example, if to compare the translation that was checked by a native speaker with the original translation of the interviews’ questions and answers by the language assistant in one of the interviews (session n.8), the inter-rater agreement in a percentage would be 86%. It is calculated as number of actual agreements (translated questions or answers without any major change of meaning) divided by number of possible agreements (translated questions or answers with major change of meaning) multiplied by 100. This is still quite a high level of agreement; however, the assumptions lying behind this way of reasoning on agreement are often of linear thinking: is what A and B translated for C 100% identical to the original message? B might be considered to transfer the more accurate information then A (or vice versa), then C gets more correct version of a question and this affects C’s answers. In a situation if C tries to turn the conversation in a way, which is more interesting or informative for her, then this communicative turn might be viewed as something based on incorrect information (“error”) that C received earlier due to B or A’s fault.

Further assuming that it was an error involved, the outcome of this communication could be considered as “noise” – something that disturbs listening to a “clear sound”. In a non-linear way of thinking, such a “noise” data is included in a communicative process and it is considered not as an error on a
way to clear result, but as a valid input instead. Since the main focus in making interviews is getting children’s opinions and views on play, all the topics brought to the discussion by children themselves are highly appreciated, in this particular research situation inter-inner agreement is not so much at stake as it could be for example in linguistic research or research based on surveys. Instead, all the information, which children wanted to communicate while being asked different types of questions or while bringing this information outside of questions’ frame counts. Thus, due to a method of analysis used in the project as well as an intention to reduce unnecessary stress among children since their comfort was at the first place, as it was noticed earlier in ethical considerations subsection the language assistant was an informed choice.

The other possible questions concern highly heterogeneous language characteristic of a studied group. Here the starting point is that the project is very much grounded in the real complex situation, taking place at present, without modelling special conditions as in a laboratory or without pre-selection of participants when they are chosen according to certain criteria as ethnic and language homogeneity. Besides, the Ethical Board approval was obtained for the project to be in this particular unit hosting various groups of children. For instance, while waiting for the Ethical Board approval when I could not approach the unit yet, the unit had a group of children where almost all of them spoke the same language. This group left the unit approximately after three months of being there and a new group of linguistically homogeneous children arrived. It was not possible to predict which group of children would come to the unit next, since the situation in 2015 was compound and rather changeable. For example, in a situation if there would be children with hidden identity in a group, conducting even an approved research will be difficult or impossible. Thus, the linguistic heterogeneity of the group was tuned with the challenge of this project to “recognize, value and work with, rather than work against and reduce, complexity and diversity” (Lenz Taguchi, 2010, xvii). This notion of complexity and diversity refers not only to language, but also includes playing interactions among many other aspects of children’s transition into the Swedish preschool.

**Observations** Both interviews and video observations took place on the same premise. A preschool section had two spacy rooms; each of them had several areas for children’s play. The first room had a reading corner with a sofa, a blackboard with markers, a shelf where puzzles and some other small toys were kept, a table for drawing, surrounded by small chairs, a table for playing with dough, also surrounded by little chairs and a children’s slide. The second room has a place to play with cars; a building block playing place, dolls’ corner, and a kitchen place including a table and an oven (see Fig.6, p.78)

The ordinary daily routine at the preschool section included two periods of children’s free play, divided by a gathering (samling). The gathering is a scheduled activity during which a teacher or a language assistant sits in a circle
together with children and they do some learning and social activities. The examples of these activities are: discovering who is present or absent, rhyming, singing songs, learning to count or learning new words in an educative play. Due to the specific nature of the preschool section, gatherings were often dedicated to learning new words in Swedish or playing some didactic games. Gathering finished by a fruit break when children were offered to choose and eat fruits. After a fruit break, the second free play period started and continued before the lunch was served. Free play indicates a period of time when children could freely choose playing activities by themselves. These periods were of the main research interest. All video observations were made during free play sessions. Collected data contains approximately 12 hours (706 min.) of video recorded observations.

Figure 6. The preschool section premises’ plan
Procedures

After all the consent (from a municipality schools’ head, a head of the preschool section, teachers and language assistants, parents and children) were obtained and I could get access to the site, I spent a week in the unit for the children to get used to my presence and to know me better. During that introductory week, there were no interviews or observations done, I only had my field notes pad with me where I was writing down my observations from time to time, first of all in order to remember all the children’s names and styles of playing behaviour. After the introductory week interviews started.

To explore children’s experiences on play, group or individual interviews were employed to have a wide frame with general questions to help the children to share their reflections on play. The invitation to a voluntary drawing session – usually a pleasant activity for children (Wright, 2011) – was included in each interview except from one informal conversational interview. It happened as a part of an observation fieldwork: a child initiated talking with me and wanted to share some information. This “informal conversational interview” (Patton, 1990, 281) took place at the end of the adaptation period of one week, which I spent at the preschool group. The sound recorded interviews were done in two rounds, one at the beginning and another one at the end of the empirical study, there is a period of eight weeks, which divides the rounds.

Being closest to the natural surroundings group interviewing was chosen for children to feel less intimidated (Greig and Taylor in Cohen, 2011, 433) and for encouraging interactions between children, initially been grouped according to their spoken language. Some individual characteristics of children were considered as well: children who were shy or preferred one-to-one interactions were interviewed individually.

During the first round, the general interview guide approach was used to obtain common information, using an open-questions interview guide as a checklist (Patton, 280). The second round had a more standardized approach since the visual material was used (pictures of actual playing “corners” in two rooms of the group) to stimulate the discussion. The first round included two individual interviews and two group interviews (four sessions); the second round included two group interviews and three individual interviews (five sessions).

Table 2 (see next page) has details about collection of all interviews data with specification of types of records (audio file and/or filed notes). It is possible to keep a track of every child’s participation in individual or group interviews during the first and second rounds as well as to have an information about age and sex of participants. For example, child D took part in both phases of one group interview (session 2) during the first round, and participated in all phases of two group interviews (sessions 5,6) during the second round. Child E participated only in the first phase of one interview (session 2).
in the first round and in the first phase of another interview (session 6) in the second round.

Table 2. *Detailed description of collected data from interviews*

<table>
<thead>
<tr>
<th>child</th>
<th>sex, age (years, months)</th>
<th>1st round</th>
<th>2nd round</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>informal conversational interview</td>
<td>individual interview</td>
</tr>
<tr>
<td>A</td>
<td>F, 4.5</td>
<td>X\textsuperscript{i}</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>M, 4.10</td>
<td>X\textsuperscript{i}</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>M, 5.10</td>
<td>X\textsuperscript{i}</td>
<td>X\textsuperscript{i}</td>
</tr>
<tr>
<td>D</td>
<td>M, 4.0</td>
<td>X\textsuperscript{i}</td>
<td>X\textsuperscript{i}</td>
</tr>
<tr>
<td>E</td>
<td>F, 4.10</td>
<td>X\textsuperscript{i}</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>M, 3.5</td>
<td>X\textsuperscript{i}</td>
<td>X\textsuperscript{i}</td>
</tr>
<tr>
<td>J</td>
<td>F, 4.4</td>
<td>X\textsuperscript{i}</td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>F, 5.0</td>
<td>X\textsuperscript{i}</td>
<td></td>
</tr>
<tr>
<td>Session N (Audio file, A; Field notes, FN)</td>
<td>1 (FN)</td>
<td>2 (A)</td>
<td>3 (FN)</td>
</tr>
</tbody>
</table>

Following research ethics of not causing unnecessary stress for the children, during the first week, I did not have any technical equipment with me – nor sound recorder, neither video camera. At the beginning of the second week when I was about to introduce video observations, my plans were affected by a visit of media representatives who wanted to know more about how the unit functions. Since at the time of data collection such a reception unit was one of the examples of a good practice “what works”, the unit often had visits not only from the colleagues of other municipalities, but also from media. The media visit happened on Monday and caused some stress for children. The
staff warned parents that if they did not want their children to participate they could be absent in the morning. Majority of parents did not object and when the media was at place, there was an ordinary number of children presented. Strangers with flashes and big video cameras impressed some of the children, one small child was rather stressed, saying from time to time “no thieves, no thieves”, first hiding his face with hands, then showing with his hand for the journalists to leave. The teacher hold and hugged the child and explained to him that journalists were not dangerous. Other children on the opposite reacted very happily to journalists’ presence. Nevertheless, I decided to postpone the start of my video observations for two days until Wednesday so that children could be back to their routine and would not project their worries on the camera I was going to use.

The choice of video observation as a method links to the idea of complexity of both play phenomenon and preschool settings. Video recordings give an opportunity to be able to come back to playing interactions and observe them in detailed nuances, simultaneously occurred on different levels with more than one participants. It provides opportunities to study each of the participant’s actions, talks, bodily language or facial expressions. Table 3 (see next page) demonstrates the frequency and lengths of all video recordings done under this project.

The video observations was done using a small hand-held camera, which was easy to carry around since the playing interactions could emerge and develop quite quickly and in different locations. The display of the camera was flexible so I was often using it under the angle I could see what is going on while recording, at the same time for children it looked like it was a camera, which was capturing my attention, not them. This way of recording helped to reduce playing moments, which were set up in front of the camera.

Table 3 (see next page) also has information about the order of all observations and interviews, which took place during the empirical data collection. Comments, which accompany the third column, provide additional important information. For example, the mentioned above case of erased audio-records happened during third week, then comments in the fourth column clarify that this interview was written down into notes. The only case of outside play, which happened during the observation period took place on Tuesday during week 3. Shorter video observations of new kids were done during the beginning of their introduction week when new children stay at preschool together with one of the parents (week 3). Having obtained parents’ consent for video observation, however I tried not to record new children for too long periods for their first days at preschool not to cause additional stress for them, besides these two new children could not continue at the preschool section due to the fear of separation with parents, who decided not to continue with preschool. Thus, these short videos were not included into selection procedure. The sub-section about analysis of observations has more detailed information about the selection process for choosing videos for further exploration.
<table>
<thead>
<tr>
<th>Weeks/ Days</th>
<th>Ord. N (as saved in camera and audio recorder)</th>
<th>Typology/comments</th>
<th>Duration in minutes: seconds /comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>w.1/ Mon-Fri</td>
<td>Observations only/ Introduction week</td>
<td>n/a/Notes</td>
<td></td>
</tr>
<tr>
<td>w.2/ Mon</td>
<td>Observations only</td>
<td>n/a/Notes</td>
<td></td>
</tr>
<tr>
<td>Tue</td>
<td>Interviews only</td>
<td>24:00; 8:45</td>
<td></td>
</tr>
<tr>
<td>Wed</td>
<td>v.1 Video observations</td>
<td>2:52; 25; 45</td>
<td></td>
</tr>
<tr>
<td>Thu</td>
<td>v.2 Video observations</td>
<td>5:32; 6:17; 1:49; 6:47; 12:34; 0:30</td>
<td></td>
</tr>
<tr>
<td>Fri</td>
<td>v.3 Video observations</td>
<td>38:39</td>
<td></td>
</tr>
<tr>
<td>w.3/ Mon</td>
<td>v.6 Video observations, interview/ Interview erased</td>
<td>20:32/ Notes</td>
<td></td>
</tr>
<tr>
<td>Tue</td>
<td>v.7 Video observations/ Outside play incl.</td>
<td>24:16; 17:43; 6:44; 21:30</td>
<td></td>
</tr>
<tr>
<td>Wed</td>
<td>v.8 Shorter video observations/ Introduction for new kids with parents</td>
<td>8:52; 8:55; 4:27; 3:25; 2:05; 1:22</td>
<td></td>
</tr>
<tr>
<td>Thu</td>
<td>v.9 Video observations</td>
<td>28:23; 15:32; 07:28; 14:20</td>
<td></td>
</tr>
<tr>
<td>w.4/ Mon</td>
<td>v.13 Video observations</td>
<td>34:59; 36; 05</td>
<td></td>
</tr>
<tr>
<td>Tue</td>
<td>v.14 Video observations</td>
<td>35:54; 51:25</td>
<td></td>
</tr>
<tr>
<td>Wed</td>
<td>v.15 Video observations</td>
<td>49:27; 44:35</td>
<td></td>
</tr>
<tr>
<td>Thu</td>
<td>v.16 Video observations</td>
<td>09; 40:55; 41:10</td>
<td></td>
</tr>
<tr>
<td>w.5</td>
<td>v. 20 Video observations/ School break (only child H was present)</td>
<td>13:00</td>
<td></td>
</tr>
<tr>
<td>w.6-7</td>
<td>Sick leave</td>
<td></td>
<td></td>
</tr>
<tr>
<td>w.8</td>
<td>no number</td>
<td>Video observations /After a break</td>
<td>27:00</td>
</tr>
<tr>
<td>w.9</td>
<td>0042 Interviews only</td>
<td>23:00</td>
<td></td>
</tr>
<tr>
<td>w.10</td>
<td>0043 Interviews only</td>
<td>22:00</td>
<td></td>
</tr>
<tr>
<td>w.10</td>
<td>0044 0045 0046 Interviews only</td>
<td>18:36 1:30 12:41</td>
<td></td>
</tr>
</tbody>
</table>
Analysis of interviews

Analysis of the data is made on the basis of the transcription of the interviews and on the basis of an informal conversational interview’s summary in the field notes. The interview itself is seen as a multi-layered system, consisting of various sub-systems. The transcription of the interviews does include detailed information about communications taken place within interviewer-language assistant-child communication joint and within other joints (child-child, child-language assistant). Since the language assistant was not a native Arabic speaker, prior to analysis a native speaker was invited to make a check on translation of: a) general questions and answers; and b) those parts of audio records, which contained mini-talks, occurred between children or the assistant and the children. These mini-talks happened during the interviews but were not necessarily in a direct connection to the questions (for instance, children’s questions like “can I take this pen”, “can you help me with this” etc.).

Linear way of thinking as one-cause-one-effect chain for analysis might consider the communication as a form of coding-decoding modality, and in the situations when the common language is a foreign (almost unknown) language for the majority of the participants an one-cause-one-effect approach would not be an effective tool for the analysis. In such a case, any non-linearity can only cause abnormality: since the original message of a sender did not reach the receiver, only “noise” data was produced. However in spite of the “noise” the communication keeps on functioning in linguistically diverse settings based on principles of “mutual coordination and attunement of participants resulting in a new joint system” (Safarov, 2009, 122). This is not to claim that the language is unimportant means of communication (on contrary it is the most important communicative means), but to underline that in a situation of linguistic diversity, the development of communications based on language is even more unpredictable and purely non-linear, than communications’ development in a mono linguistic surrounding.

Subjective choices of participants may lead to sudden changes in communication with new topics or new discussions emerged as well as these choices may not lead to any changes. Episode 1 demonstrates how the interest of one girl to know if the other one likes to play football emerged, based on the question, which were addressed to and repeated for another boy; but this choice of her did not bring any changes in a communication. Episode 2 shows how a picture of a plane had attracted one boy’s attention and he made a sudden change in a communication, starting playing with the words – the other boy found this change attractive and repeated rhyming after him. With these small episodes, I try to show how a non-linear process of communication is emerging, being shaped and formed by subjective choices of the participants that

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30 Procedures subsection has a description of such an approach when describing the assumptions behind inter-rate agreement
might or might not bring a change in a communicative episode on a sub-system level or on a meta-communication system level.

**Episode 1 (session n.7)**

Interviewer: [...] But do you like playing football?
Language assistant: translated and repeated the question few times in Arabic.
Child F: yes
Child E was not participating in the interview but heard the question “do you like playing football” asked in Arabic few times, then she addressed her own question in Arabic to child H: can you also, H?
Child H does not reply because she does not understand neither does she speak Arabic.

**Episode 2 (session n.5)**

Group interview with child C and child D
Interviewer, showing the picture of a “reading corner” which has a sofa: what is this?
Language assistant translated the question in Kurdish dialect.
Child C: it is to rest!
Child D: to rest!
Interviewer: to rest, yes. And what is this (showing the picture of “block play corner”)?
Language assistant translated in a Kurdish dialect
Child C One can build things, we have it here as well (showing)
A picture of a plane laying on the table suddenly captured Child C’s attention. He started playing with words by rhyming words plane and table. Child D repeats the rhyme. Both children laugh.

Using Fogel’s system concept of communication (1993) as a framework for analysis, I started the conversion of interpretations and descriptions into a theory to build an explanation (in Maxwell’s terms). According to Fogel (1993, 51) “communication actions are embedded in dynamic transactions with other individuals in such a way that no single individual has complete control over the process, structure or outcome of communication”. So far within the coupling, each of the actors - child or adult- can continuously and jointly co-regulate actions or communications. The important characteristics of the latter are complexity and non-linearity: not a single, but multiple cause-effects between the participants of communication, unpredictable shifts in communications when a small influence might cause a disproportional reply, “sudden changes in communication induced by subjective choices of participants” (Saifarov, 2009, 122). Thus understanding communication within adult-child coupling as a complex, non-linear phenomenon is an entry point for conducting interviews with newcomer children.

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31 Here and further in the text episode’s number is given to the abstracts of the interviews according to their appearance in the text, not chronologically, while sessions’ numbers always correspond to the real chronological session numbers indicated in Table 2 (p. 80).
First, the open coding (Strauss and Corbin in Cohen, 2011) was manually used through the whole transcript for description and categorization purposes. At the open-code phase, the units of prior analysis were identified as followed: since children’s individual experiences of play were under extensive search, those parts of the interviews where the issues in relation to play emerged by a choice which a child herself made to change a communication were prioritized. This choice could be answers to the questions which contained “noise” data from a linear perspective, when instead of answering a structured question about visual materials, a child started to talk about something else (for example in episode 3 *cycling* is an emerged topic). The choice could also be visible as the same, repeated but spread through the whole interview issue, brought by a child.

**Episode 3 (session n.5)**
Interviewer showing another picture (a table for drawing),
Child C: one can leave things on it,
Interviewer: can you draw here? Or what will you do?
Child C: yes, I can draw;
Interviewer: do you like drawing?
Child C: no, I will only cycle.

These cases of sudden changes in communication due to the subjective choices of children were analysed and served for selective coding procedure.

All the cases of changes were identified through careful reading of transcripts of the interviews. The cases of changes in communications were marked by codes which simply named what was mentioned by children. Several rounds of identification and selection of all possible changes in communications took place and revealed few selective codes.

Second, the transcript was analysed for checking if the selective codes were subsuming for further categorization of the data. The selective codes served as openings for the categorization. When the categories were identified, it was the time to concentrate on characteristics of each category.

The ranking order of characteristics within categories is based on the nature of contributors towards these characteristics. Each contributor gets added numerical value (1-4) which is ranged according to the level of choice available to children while communicating with adults. The adults might still affect the level of children’s choice by their [adults] very presence or status, by a selection of questions, or anything that potentially reduces possibilities to exercise that choice within child-adult coupling. Therefore, the various forms of children’s reference to playing activities constitute contributors as followed (see Fig.7, p.87):
• direct answers to the dichotomous questions for ex. “do you like playing with cars? – yes/no” are considered as weak (1, Weak) contributors to the characteristics,
• comments which accompanied the answers to direct questions are considered as average (2, Average) contributors to the characteristics for ex. “do you like cycling? – I like it so much!”;
• listing an activity as a favourite in an open-ended question is considered as strong (3, Strong) contributor;
• emerged themes/associations as the result of the children’s choice were considered as the strongest (4, Strongest) contributors to the characteristics. The majority of emerged topics occurred during narratives as for example activity cycling in episode 3. Nevertheless, episode 4 demonstrates an interesting example of emerged topic in a visual narrative. A choice to draw a duck could be influenced by a toy, used by Interviewer as a puppet to start the first interview (“qua-qua, hi, can I ask you some questions?”). In contrast to the duck, a heart made from dough was a theme emerged during the drawing.

**Episode 4 (session n.1)**
First child E wanted to draw a duck in a response to Interviewer, asking to draw a favourite toy or play (child E: a duck (2, A), I like!), but at the end child E drew something else and commented: a heart, but from dough (4, Str)!

This visual narrative was later cross-validated with the answers during the next interview as Episode 5 shows:

**Episode 5 (session n.6)**
Interviewer: Do I miss anything? Can you help me to name more plays or toys?
Child E: I’m playing with the dough (3, St).

In this case, duck as a characteristic would have a weak contributor, while dough would have much stronger contributors.

Table 4. *An example of how characteristics obtained its ranking within categories*

<table>
<thead>
<tr>
<th>Added value of category’s characteristic X</th>
<th>1 (Weak)</th>
<th>2 (Average)</th>
<th>3 (Strong)</th>
<th>4 (Strongest)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children’s references to characteristic X</td>
<td>Child 1, Child 2</td>
<td>Child 1, Child 4</td>
<td>Child 3, Child 5</td>
<td></td>
</tr>
</tbody>
</table>

To keep the characteristics more inclusive, so that opinions of more children could be seen if possible, in case of multiple entries from the same child to the same characteristic, the entry with the highest added value was considered for
ranking. Table 4 (above) demonstrates how for instance only the entry of child 1 with the strong contributor, but not with the weak one counts. Otherwise, multiple entries form the same (for instance more talkative, not so shy, etc.) child can affect characteristics so that the contribution of all other children become less visible.

Figure 7. Analytical tool developed to analyse interviews data

First based on the non-linear and complex vision of communication within adult-child coupling as well as on the idea of sudden changes in communication leading to emerged themes, second in attempt to minimize adults’ effect on children’s expression of their perception, analytical tool for analysing interviews data was developed and applied (Fig. 7, above). The next chapter has detailed description of all categories and characteristics, which appeared as a result of this particular type of analysis.
Analysis of observations

The first selection of videos for more detailed analysis was done based on the mentioned idea of playing interactions to be a process involving minimum two participants – the crucial criteria for defining playing interactions in this project. All selected videos were listed together with a short description of what happened in those videos and who participated in them.

During the second selection of the videos, I chose those, which had records of the children who participated in the interviews and contained minimum amount of missing data (when the observed participant is not recorded). The special attention was given to the episodes with maximum number of children being present, so that it was possible to explore their playing interactions under the same circumstances. Thus, twelve videos of different lengths (approx. 5.5 hours) were chosen for further exploration of a process of dynamics, taking place in playing interactions’ system.

The episode presented in this sub-section is selected as an example for analysis demonstration. The selection was based on the criteria of how intensive playing interactions were – so that the episode had a visible dynamics for the observer. Safarov (2009, 249) notices that “the approximate knowledge of the observed and experienced dynamic phenomena cannot be achieved by verbal classifications” due to non-linear and complex character of phenomena, but for this example partly descriptive way of analysis is applied to demonstrate some elements of playing interactions presented as DS. A slide episode, which is under analysis, took place in a room having a slide corner (Fig.12, p.104).

Slide episode with sub-episodes I-VI. Participants: Child C; Child D; Child B. Episode’s duration: approx. 240 secs.

I A teacher says “no” to the boy (C) who started to move the slide. The other boy (D) puts the slide back to its place. “Bravo”, says the teacher. C moves it back again. The teacher comes to put it back to its place. Child D helps the teacher. After that child D starts climbing on the slide. Child C stands nearby, then he leaves.

II Child B comes. He laughs and pushes child D who is lying on the slide to help him sliding down fast. Child D makes a sound – it is not clear whether he is also laughing or getting angry, his face has a smile which can be interpreted as a grimace also. He gets up, running back to the top of the slide where Child B starts sliding down. Child B makes some rhythmic noises “uh, ah, uh, ah”. Child D is now on the top of the slide. Child B pushes him to slide down, and then goes himself, continuing making sounds. It is child D’s turn to slide now, but he steps back, letting Child B to go ahead. Child B goes ahead but instead of sliding down he sits still on the top of the slide. Child D wants to step over child B to slide. Child B tries to “squeeze” child D between himself and a wall of the slide while sitting on the top. Child B hesitates and steps back. Very carefully child B tries to push child B from the top. Child B stops him.

32 Ord. n. v.7 (video code 5710)
III Then child B starts playing with a toy car, which he has in his hand inside the slide while child B still sits at the top. Child B tries to grab the car. The boys pull the car in their directions; this physical action takes place at the top of the slide. Child D movements become faster and faster in attempt to get the car back from child B. Child B slides down with the car. They both run away from the slide, child D chases child B and child B tries to get the car back.

IV They both start running and catching each other. Now when child D grabs the neck of child B ("got you" sign), child C comes to them from another room, being attracted by some rough and tough play. The teacher stopped child C from joining child D and child B. The teacher says to the boys to calm down. Child B and child D go apart.

V Child D starts running the car from the top of the slide. Suddenly child C comes, pushes child D to slide fast and slides after him. Child B joins. Child C and child B slide in turn. The rhythm becomes higher and they start making noise (excitement). Two times child D let child B go ahead and child D makes sure that child B is down the slide when child D himself is on the top. The teachers say something, the rhythm goes down immediately, and the boys turn heads towards teachers’ direction.

VI After being distracted by the teacher, with slow rhythm, they continue sliding in turns first in relative calmness (one can hear their breathing only, which becomes louder), then child C start making noise, so does child B, the rhythm increases. One child laughs, the other joins laughing. Two teachers come; one says “ok, we will go out”. Child B and child C look at the teacher. The teacher takes child C’s hand and says to other boys, “come”! All the boys continue to the place where their clothes are kept and start putting their clothes to go out.

DS presented by the above example is always changing from being in a point of time that includes two participants (dyadic interactions) to the point that has three participants (triadic interactions). It is not the only change occurring within the system, but this change is easy to detect for an external observer. The teachers who in this particular case causes interruptions of playing interactions also participate in the system at certain points. Two or three newcomer children (system variables) interact within this DS. The latter has a determined behaviour (see next page). The evolving of the system is connected to the short-term phases of playing interactions, which correspond to sub-episodes in the slide episode. These phases are divided between each other not only because of the number of children involved, but also because of the content of the phase. For instance, we can observe few trails of building of playing interactions: an unsuccessful (un-intervened) trial in the phase II; a successful trial (intervened) in the phases III and IV; and another successful trial in the phases V and VI.

The phases (sub-episodes) can demonstrate the movements of DS (playing interactions) while DS emerges and changes. The first phase (sub-episode I) does not have playing interactions involved, as specified we define our system to be interactive and to have minimum two participants. In the first episode, child C moves the slide; he might find it as a play even if he looks not playful
at that moment of silence. However, for the observer it is not possible to detect whether the child entered play or not: asking a child would ruin the play itself if it was at place and no further observation of play would be possible. When the two participants start getting involved, it becomes easier (but not that easy though) to detect the playing interactions as each child indicates by various means (verbal, non-verbal) that she is ready/interested to be involved/already involved in playing interactions. So based on our selection of the system, the first episode does not contain playing interactions (the teacher who came to put the slide back had no intentions to start playing).

The system starts evolving when child B comes and pushes child D lying on the slide. The physical interaction is a start and at this point child B’s playful mood is stronger than child D’s playful mood or his intention to start playing. The sound which child D makes when he is down the slide and the face’s grimace can be interpreted as if child D were angry at child B. Child B does not react to child D’s sound, he might interpret child D’s grimace as a smile and continues playing. Child D has several options to follow, but he chooses to get involved into playing. Not only the personal choice of child D makes the playing interactions emerging: child B being around, willing to play and expressing that wish with his body language and some physical actions; the slide being available for playing; absence of any disturbances around or any more attractive interactions to join, all these interrelated into the playing interactions system.

Next movement of the system (sub-episode III) links to the actions with the car and then the actions develop into running, pure physical activity (sub-episode IV). DS becomes very dynamic before it is interrupted by the teacher (for the safety reasons and due to certain rules of behaviour inside). DS was not demolished as it continues emerging near the slide first with the involvement of the car, then when sliding itself takes place. DS is interrupted or disturbed in sub-episode V but it does emerge again in sub-episode VI.

When discovering system’s elements, what is visible for the human observer at once from the slide episode is that the slide might be a strong attractor for the playing interactions to start and continue: the movements of the system (its behaviour) can be traced as being near the slide for the longest and more frequent periods.

Table 5. Observed elements of DS during sub-episodes II-VI

<table>
<thead>
<tr>
<th>Sub-episode N</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
<th>VI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dynamic systems elements, Observed</td>
<td>Slide, sliding activity</td>
<td>Slide, playing with toys</td>
<td>Running activity while catching toy car</td>
<td>Slide, playing with toy car, sliding activity</td>
<td>Slide, sliding activity</td>
</tr>
</tbody>
</table>

The vision of the slide as one of the possible attractors (in blue, Table 5) in DS (playing interactions) is made for the demonstration purpose. This vision
is possible because of an accessible form for detection – verbalized observation – in the presented episode. However, since complexity is the main feature of DS, the slide can be not the only attractor during playing interaction. It always exists with various interrelations, in nesting with other elements. For instance, the slide can appear to be a weak, not strong attractor etc. Besides the slide episode lasts for only 240 seconds, while the length of the multiple observations is considerably longer with more elements involved into DS.

Therefore, to figure out what attracts playing interactions and keeps it in place we need to trace a trajectory of the movements of DS (its behaviour), the trajectory of a “ball” moving around a landscape (p.93). The trajectory makes it clear where basins of attractors are situated. Where DS does stay long or return often? This trajectory can be detected with the help of State Space Grid (SSG) method.

**SSG method**

SSG method is based on a graphical approach that works with ordinal data and quantifies it “according to [minimum] two dimensions that define the state space for the system” (Hollenstain, 2007, 14). State space (phase portrait) for the system is a graphic representation of all possible state the system variables can take. All changes in data can be tracked in connection to the previous point which gives sequence of events: playing interactions of sub-episode II are connected to the playing interactions of sub-episode III etc. The method is not only used for dyadic interactions between two individuals, but also for dyadic interactions within a group, Hollenstain (2007) has description of various studies using SSG method, triadic interactions have been also explored with the help of SSG (Hollenstain, in press).

When we talked about phase portraits/state space the graphical representation of system dynamics as a landscape was used to explain notions of repellors and attractors (p.59). How was that landscape made? If we look below the landscape, we can see that there are x, y, and z axis presented. x axis alone with y axis signify system variables, while additional vertical z axis allows to make three-dimensional picture so we can see hills and basins. Before z axis is added, state space (phase portrait) would look as a two-dimensional table of variables (Fig.9, p.94). In slide episode there are dyadic (child D and child B) and triadic playing interactions (child B, child D, and child C) taking place, but for the demonstration purpose we use dyadic interactions of child D and child B during sub-episodes II-IV. As we defined DS before it has minimum two children united during the playing interaction. So two variables are children child D (y) and child B (x), these two children being united by emerged play are included into DS (playing interactions).
Figure 8. Three-dimensional state space of a DS (adapted from Henry, 2016).

The simple system of playing interactions can have only two parameters: presence of playing interactions/ absence of playing interactions as indicators of all theoretical and actual possibilities for these interactions. It is suitable for exploring longitude periods to discover for instance whether the playing interactions were emerged or not on the particular occasions, did the frequency of their emergence changed etc. Since we are interested in temporal dynamics of the emergence and a structure of playing interactions, it is logical to have more than just two (non-play/play) parameters involved. The choice of parameters was informed by systems theory framework and its concept of observations (Chapter 3) and connected to it notion of objectivity, which “indicates that observations have been socially proven to whatever standards the specific social system takes into account” (Keiding, 2010). There are developed frameworks for observing and classifying children’s playing activities used in ECEC (Arnott, 2016, 273), so the starting point of observation connects to already proven and accepted ideas within ECEC educational system.

Based on Broadhead’s observational-interpretational tool Social Play Continuum (Broadhead, 2006) and Safarov’s (2009) model of nonlinear dynamic systems model of human relationships33 specified parameters as presented in the Table below are used for creating state space/phase portrait of DS (playing interactions):

---

33 In his work, Safarov (2009) used an example of children’s playing interactions as an empirical material
Table 6. Specification of parameters used in observing DS (playing interactions).

<table>
<thead>
<tr>
<th>Neutral</th>
<th>Low intensive playing interactions</th>
<th>Medium intensive playing interactions</th>
<th>High intensive playing interactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Not responding on actions directed on her</td>
<td>Smiling</td>
<td>Offering/accepting objects sustain/extends play</td>
</tr>
<tr>
<td></td>
<td>Looks towards peers</td>
<td>Laughing</td>
<td>Eye contact/laugher (play noise) combined as cluster</td>
</tr>
<tr>
<td></td>
<td>Watches play</td>
<td>Play noises, play voice</td>
<td>Unfolding of energy/action of participants</td>
</tr>
<tr>
<td></td>
<td>Imitates play</td>
<td>Eye contact made</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Object offered, not accepted</td>
<td>Object taken, no disagreement</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Object taken, disagreement</td>
<td>Object offered and received</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Parallel play period</td>
<td>Children leave and join the play at frequent intervals</td>
<td>Absorption in task</td>
</tr>
<tr>
<td></td>
<td>Persistence of self-expression</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Resistance</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adults intervention may often be wanted</td>
<td></td>
<td>Adults intervention not wanted until completion</td>
</tr>
</tbody>
</table>

*Beginning of mutual investigation, learning to see and to hear the other peer*

*Accepting the other and excitement by novelty of other in offered role*

*Mutual acceptance and coordination (shared sense of play and its goal)*

In our case, playing interaction for each child is plotted on a grid, which represents possible combinations of parameters of playing interactions indicated in Table 6 (above). The cells in the grid capture intersection of each dyad member’s interaction. In sub-episode II, from which the playing interactions emerged first child B is plotted on a grid of Medium Intensive playing interactions, while child D is plotted on a grid of Low Intensive playing interactions (marked with a white node). Some seconds after child D moves towards Medium Intensive state, child B is still plotted there, both continued on Medium Intensive state. Table 7 (next page) demonstrates how child D and child B’s interactions were plotted on a grid on a real time scale during the whole sub-episode II with 10 seconds interval.
Table 7. Example of child D and child B’s interactions being simultaneously plotted on a grid based on parameters of intensity of playing interactions during sub-episode II

<table>
<thead>
<tr>
<th>Time in seconds</th>
<th>00.00</th>
<th>00.10</th>
<th>00.20</th>
<th>00.30</th>
<th>00.40</th>
<th>00.50</th>
<th>00.60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intensity of child D playing interactions</td>
<td>low</td>
<td>medium</td>
<td>medium</td>
<td>low</td>
<td>medium</td>
<td>low</td>
<td>low</td>
</tr>
<tr>
<td>Intensity of child B playing interactions</td>
<td>medium</td>
<td>medium</td>
<td>medium</td>
<td>medium</td>
<td>low</td>
<td>medium</td>
<td>low</td>
</tr>
</tbody>
</table>

Fig. 9 demonstrates the completed plotting process for all sub-episodes II-IV of dyadic playing interaction between child D and child B. The nodes vary in size depending on the time spent in each cell. The narrow on the lines show the direction of the movements of nods (simultaneous activities of each participant of playing interactions), these movements alone with the nodes is the trajectory of DS (playing interactions behaviour), the trajectory that we are interested in for further exploration of the structure and characteristics of DS.

![Figure 9. State Space Grid/phase portrait of playing interactions between child D and child B during sub-episodes II-IV, total duration 84 sec.](image)

As noticed earlier, this example is used for demonstration purpose and the choice of it links to some extend visible dynamics; that is why if we use time-based plotting of interactions with 10 seconds intervals, it suits this particular episode well. However, dynamics can vary for each individual case and 10 seconds interval might be too short or too long period for catching the change.
Due to this reason, the plotting of interactions is chosen to be event-based, so every change in the playing interactions of any of the participants are plotted simultaneously not after a certain time interval, but after any change in the intensity during a course of playing interactions. The variations of coded interactions of one dyad and four individuals in connection to the group (anyone from the children’s group or any teachers who participated in playing interactions with this individual) presented below.

Already during the introductory week, I tried to figure out the friendship relations between children to understand which dyads can be plotted on a grid, but it was not an easy task since some relations were not formed yet. During the week, my intention was also to distinguish “master players”, a concept discussed in Reynolds and Jones, 1997 or “field dependent” individuals (Saracho, 2003) – children who had more advanced playing skills and for that reason were more attractive play partners than others. One girl matched the description of a master player already during the first week – this might be because she had stayed in the unit few weeks more than other kids did, so she could express herself more freely. As for others, the level of their play proficiency or involvement in friendship with others were not so clear during the introductory week.

Based on observations of all video recording from the project, I could distinguish four “master players” (two girls and two boys), the other four children had less advanced playing skills to perform individually; they felt more secure playing with someone else or simply following master players. Besides, two of these four “followers” had rejected social status (Martin et al., 2005), meaning that often they were not accepted into other children’s’ play. There was one dyad formed between a master player and a follower based on fast developing friendship, the other dyad was also formed between a master player and a follower, but their friendship relations were not building so fast. Based on the results of the general observations, the selection of episodes for coding procedure included following variations:

1) playing interactions of a dyad of a master (Child E) and a follower (Child A) players with fast growing friendship connection were coded at the beginning and closer to the end of an observation period;
2) playing interactions of a follower player (Child D) and a master player (Child C) during their slowly growing friendship, alternatively playing interactions of Child D with the rest of the group34 were also coded at the beginning and closer to the end of an observation period;

34 Here, similar to Martin et al. (2005), the group is considered as consisting of multiple players, when anyone from the group (a child or an adult that is a primary interactive player) begins interaction with an observed child, these children or adults are considered to represent a group at the individual level. This is the case when “‘individual’ does not necessarily refer to a single individual”, but to “a level at which a particular process actually occurs”, so both the observed child and any group member act on the individual level (van Vondel et al., 2016, 209).
3) playing interactions of one master (Child F) and two follower players with rejected status (Child B and Child J) were coded based on videos, chosen as most typical cases for each of three children at the beginning and closer to the end of observations, preferably happening during the same time as the first two variations. Interactions of these three children were also coded in a “child and primary playing partner” format.

Table 8 (see next page) contains information on all participants of the dyads and their status in combination with information on when the selected episode happened and how long they last. Selected coded episodes were then plotted on the grids with the help of SSG method for visualisation purpose; first, to demonstrate various dynamics of playing interactions, and second, to further explore a particular favourable state of playing interactions. Chapter 6 introduces visualisation of coded variations, while Chapter 7 explicitly explores patterns of favourable states in connection to results of interviews with participants.
Table 8. *Chosen episodes for coding of dyadic playing interactions of newcomer children of different statuses: master player (M), follower player (F); rejected (R), accepted (A). Dyads are formed between individuals or between an individual and her primary playing partner (PPP)*

<table>
<thead>
<tr>
<th>Video and week number, Episode number and minutes:seconds</th>
<th>Child A (F, A) and Child E (M1)</th>
<th>Child J (F, R) and PPP</th>
<th>Child D (F, A) and Child C (M2) or PPP</th>
<th>Child F (M3) and PPP</th>
<th>Child B (F, R) and PPP</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1, week 2</td>
<td>25:00 X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>45:00 X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V7, Week 3</td>
<td>6:44 X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>21:30 X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V9, Week 3</td>
<td>28:23 X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>34:59 X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V13, Week 4</td>
<td>36:05 X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>44:35 X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V16, Week 4</td>
<td>40:53 X</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
The four main categories that related to experiences of playing activities among this particular group of newcomer children at the preschool section were discovered to be relational, activity, emotional, and locational (Fig.10, see next page). Tightly related to each other and emerging on a regular basis at the neighbours’ all these categories are interdependent in a complex way. This chapter explores each of the four categories that appeared during the analysis of interviews with children.

The analysis section has a detailed description of how the categories appeared based on children’s play visions and experiences which emerged during the interviews. The ranking of characteristics inside the main categories links to how various types of contributors (from weak to strongest) affected the position of each characteristic. Nevertheless, this ranking is not for comparison in-between categories; for example this is not to compare which characteristic got a higher value from children: Friends from the Relational category or Happiness from the Emotional category. This is to underline the value of characteristics within the categories themselves in order to get closer to children’s perspectives in an attempt to minimalize adults’ influence on these perspectives. This is also to show the popularity of certain playing activities within this group of newcomer children.

The very first interview started as a talk between children who were around a table with papers, pencils, scissors and a toy taken from the toy box which played a role of an icebreaker: “interviewer talking on behalf of a toy (a duck): - hi, is it ok for you to talk to me?” The children gave their oral agreement before they joined the table, but it was important to repeat a few times that they could participate if they wanted and if they did not want – they were free to leave any time. This happened to one child who left after the first phase of the
Figure 10. Main categories (REAL) that related to experiences of playing activities among newcomer children at the preschool section group

interview. She made her contribution mostly non-verbally for example by nodding her head when a friend of hers was talking or by just chatting with the other children and discussing play issues. This child did not participate in any other interviews either despite her given agreement. Her body language indicated that she was not interested or not feeling comfortable to take part in interviews so to keep her free of unintended stress, she was yet asked if she would like to leave, so she did.

Another child due to an early age of three and a half years old was not included in the group of children for interviewing from the beginning; however, the child expressed a personal wish to take part in some interviews. The very social character and rich emotional non-verbal spectrum of the child gave valuable data, both of verbal and non-verbal nature.

Thus, the main participants of the interviews became children from the age three and a half years old to five years and ten months years old. Some of the children preferred individual interviews; others wanted to join group interviews. For some children the direct questions were the only options to get their opinions. These children enjoyed answering direct questions to a big extent, asking for more questions to answer, but it was difficult to get them out of the direct question frame. For other children open-ended question presented a bigger interest; they were eager to share their views with or without questions. Through answering direct questions, (even if the answers to the direct questions present weak contributors to characteristics) children still managed to
express themselves verbally and non-verbally alone with expressing their current mood:

**Episode 6 (session n.6)**

Interviewer: D, can you tell me about… (showing the first picture) I think you like that.
Child D: no
Interviewer: no?
Child D: no
Interviewer: maybe this (showing another picture)?
Child D: no
Interviewer: which one? This (showing the third picture)?
Child D: no
Interviewer showing all the pictures, to each of them D says no
Interviewer: (guessing) can no means yes?
Child D: no means no

Episode 7 demonstrates how direct questions helped to communicate with the youngest participant who also wanted to give an answer to the open-ended question but his language skills did not allow yet to explain in full what he wanted to say:

**Episode 7, (session n.7)** child F was busy drawing the circle and making some sounds while drawing – could be an indicator of the movements that are to be caught in drawing, in the earlier session (n.3), F was also drawing similar line, mentioning that when he came to the kindergarten he did “like that”. Fig.14 (p. 1-2) has two of Child F’s “circle” pictures.

Interviewer: F, did you make this drawing? What is this?
Child F: me!
Interviewer: what is it? A ball?
Child F: yes
Interviewer: is it to do like this [repeating the movements and sounds of F while he was drawing] or a ball?
Child F: speaking “children’s” language so it is not possible to understand what is said, then pointing to the circle.
Interviewer: (trying to guess) aha, so it is a circle?!? But do you like playing football?
Child F: yes
Interviewer: [showing the pictures of playing corners] can you talk about your favourite place to play?
Child F watching the pictures, pointing at the dough table and construction corners, then making a sound and showing by hand for Interviewer and Language assistant to go away.

The very first interview started with a discussion about the preschool as a whole – whether children like or not to be there. After getting positive answers, the followed questions were why they liked to be there.
**Episode 8, (session n.2)**

Interviewer: why do you like it? E, why do you like it too?
Child E: I am playing.
Child D: I like it too. I can swim too!

After children themselves mentioned *playing* they named an activity themselves (Episode 8), I asked them if they would like to draw their favourite play or toy. The majority of the drawings created during the interviews stayed in the group or with children apart from few drawings, which they made directly in my field notes pad. They usually did not want to share their pictures, but instead to keep them or take the pictures home if they were not playing a cutting game. Due to this fact, I printed out pictures of the playing “corners” before the second round of the interviews and used these pictures for a more standardized version of the questions about children’s favourite places to play inside the preschool in order to start the interviews. The questions aimed at getting information about playing “corners” and included some or all of following questions:

- Can you tell me what is this?
- What is this for? What do you do there?
- Do you like this place?
- Which is your (absolute) favourite one of these places?

Children became very enthusiastic to participate in the standardized form of interviews with visual materials; it was usually easier for them to orientate between the questions when they could see the pictures. Unexpectedly the first participants of the second round could not recognize at first the playing “corners” in the pictures. They started to describe what was that (the meaning) and some got very surprised at the very moment when they were realizing the pictures were from the preschool section. Later participants could orientate better since they saw the pictures before their turn came.

Visual material provided a faster track to collect more data about their experiences of playing in those preschool places. Parallel to the standardized questions, the open-ended questions from the interview guide were used to know more about playing activities of children outside of the preschool settings.

Since I used an audio recorder for the interviews some children were curious about it at the beginning, they often wanted to see it, touch it or press the buttons:

**Episode 9 (session n.2)**

Child D explores the audio recorder; they talk about it with child C
Child D: this is electrical, so we have it!
Interviewer: it’s an audio recorder, do you know that I can listen to what you said?
**Episode 10 (session n.9)**

Child H (checking the audio recorder’s buttons): What is this?

Interviewer: you cannot press here, but soon I can show you and we can listen to what you say. Is it ok?

Child H agrees and we listen to her recorded voice after the interview.

Child B who explored an audio-recorder erased the record right after the interview took place (session n.3). He did not take part in the interview, but started to pretend he was an interviewer, got into playing mood, grabbed the audio recorder unnoticed then did not want to give it back. During the play that I started in order to get the audio recorder back Child B pressed Delete. Following Patton’s (1990) recommendation for a case when a malfunction with audio recording occurred, I immediately made extensive notes of everything that I remembered. The erased data in my case happened not due to malfunction, but due to the active participation of children in the research.

As mentioned in the beginning of this chapter, all the discovered categories are interdependent and emerge within each other on a regular basis. Episode 11 shows an example of such interdependence:

**Episode 11 (session n.6)**

Interviewer: E, do you like to play with children or your parents: mama and papa?

Child E: I am playing with my papa. He is playing with me. He is tickling me (showing how to tickle and laughing).

[…]

Interviewer: do you like to play with papa or with children? Which play do you do?

Child E: with the hands, tickling.

Interviewer: will you tickle your papa or will your papa tickle you?

Child E: I tickle papa (laughing)!

Fig.11 visualizes categories extracted when Child E talks about playing situation. While the characteristic in the Relational category (papa) has an average contributor since it was a given answer to the optional question, it also relates to the Activity category by its characteristic (tickling). The latter has the strongest contributor as it emerged during communication. In a situation described by a child, it is not clear which characteristic from the Locational category can capture tickling play (home, inside, outside). Laughing during the explanation indicates the happy mood of a child while talking and showing the play and/or remembering how she played with her father. This relates to the Emotional category, in which happiness as a characteristic has the strongest contributor since the emotional state emerged during the communication without any direct questions being asked before.
Activity

*Unstructed play and physical activity*

The example of the specific and complex nature of the characteristics could be two favourite places for play in the preschool group: a slide (Fig.12) and a table for playing with dough (Fig.13) alone with sliding and playing with the dough activities respectively. Findings based on data from a standardized version of interview questions with the use of the visual materials – pictures representing places for play in the pre-school group -- show the particularly high appreciation of these two in-situ places. These two places got the highest response rank compared to other places. The slide/sliding got a high ranking position with many *weak contributors* (direct answers to “do you like to play here” or “do you like sliding”). Meanwhile a table for playing with dough had slightly fewer contributors, but of a strong nature (open-ended questions about a favourite activity for example, “what is your favourite play” or “where do you like to play the most”). At the same time both of the places do have *strongest contributors* embedded in their nature. As emerged themes, they have various relations/associations with other categories. For example Child H:

- while answering direct question about her likes or dislikes towards the table for playing with dough said yes (1,W) in one of the interviews;
- listed the place as the favourite one (3, S) in another interview;
- talked about the emerged theme, dough cake (4, Str) associated with the dough place (see Episode 12), at the same time the emerged theme also...
represented a relational category - teachers is one of the characteristics of this category).

**Episode 12 (session n.9)**
Interviewer: and here (showing the picture of the kitchen place)?
Child H: there to bake
Interviewer: oh, to bake! If I ask you: which is your favorite place to play?
Child H: I think that one (showing to the place)
Interviewer: with the dough?
Child H: you can make a cake and give it to A or B (names of the teachers’ staff)

*Figure 12. Image of a slide*

*Figure 13. Image of a table for playing with dough*
Cycling appeared as emerged theme both in the first and second rounds of the interviews. Child C had cycling as an emerging theme (see also Episode 3, p. 85) on a constant basis during session n.5; it emerged while we talked about drawing, cars and playing football. When talking about cycling, he also mentioned the importance wearing a helmet (session n.5: “I like to put on a helmet and cycle, so you will not fell down. I will not fell on the head while cycling”). Other children was referring to cycling within direct questions’ frame, for example:

**Episode 13 (session n.8)**
Interviewer: do you like cycling?
Child J: yes
Interviewer: Do you have a bicycle?
Child J: yes
Interviewer: […] Do you play with the bicycle?
Child J: yes

During session n.4 Child H was drawing transport first, and then started to talk about various types of transport she could drive:

**Episode 14 (session n.4)**
Child H: with motorcycles, cars and buses, all the motorcycles
Interviewer: can you? Can you drive a motorcycle?
Child H: yes, also a cycle.
Interviewer: H, you said you liked playing games.
Child H: playing games? And motorcycle!
Several minutes later in the interview
Interviewer: you said you could cycle and motorcycle.
Child H: yeah, I can drive a bus, a big one!

Cycling first emerged in a fantasy talk during the drawing (Episode 14) then it was cross-validated with the answers during Episode 15. H was drawing transport and toys during session n.9 as well, but she mentioned only cycling as a favourite activity together with playing football. While in Episode 15 the contributor was weak, however it confirmed the emerged nature of this characteristic in Episode 14:

**Episode 15 (session n.9)**
Interviewer: do you like to play football?
Child H: yeah
Interviewer: or cycling?
Child H: cycling and playing football. Outside!
Interviewer: outside? Aha!
Child H: and running!

Cutting and running as physical activities did not have many entries, but both characteristics did appear first with strongest contributors:
**Episode 16 (session n.2)**

Interviewer: can you draw your favourite play or toy?
Child D: I like fish

A lot of voices heard at once, one can hear child B saying I can’t draw anything. Then a box of pencils fell down.
Interviewer: ojojoj! (helping to collect them, asking Child D) which colour will you have?
Child D: I will not

Interviewer: is it a big fish?
Child D: I will not draw.

Interviewer: ok. (asking child C) what do you have? Spiderman?
[three lines mini-talk about Spiderman with Child C]

Interviewer: (asking Child D) do you like fish?
Child D: I will cut!

Two other boys start cutting as well, laughing and enjoying the process as did child F during session n.3, first he was drawing, and then he noticed scissors and started cutting his drawings with excitement.

Running appeared as an emerged theme first in Episode 15; then it had another weak contributor during another interview:

**Episode 17 (session n.8)**

Interviewer: J, if you play, are you running a bit?
Child J: a bit

The two other characteristics tickle and swim stay the last in ranking since children mentioned each of them once; nevertheless these two has strongest contributors. See Episode 8 (swim) and Episode 11 (tickling).

**Digital play and games with rules**

Almost all children (in one or another way) showed that they distinguished play and game phenomena. There is also a tight relation to the location category. When it comes to play or game, the game is usually associated with digital games and occurs at home, while play could happen both inside and outside. The latter was highly appreciated among children; several times they mentioned outside to be a desired space to play as for example Episode 13 also shows.

Episode 18 illustrates details of the distinction between and location of play and game. Before this episode, Child C was talking a lot about outside activities, including cycling and playing football with friends at the playing ground. This episode can also depict the slightly different nature of such characteristics as physical activity and digital game: they both situated in an equal position in the ranking but the contributors to obtain a similar place are different – physical activity emerged via strongest contributors while digital game’s contributors within this group of children are weaker. There were mostly direct
answers to the questions about likes and dislikes of playing with tablets, computers or playboxes.

Two episodes 18 and 19 contain stronger than usual contributors to digital games characteristic; nevertheless the emerged topic of physical activity (cycling) or emphasis on playing celebration game (topic which emerged from parallel drawing so it was not very clear whether this game was originally digital or not) moved away children’s interest from digital towards physical (or fantasy) playing.

**Episode 18 (session n.5)**
Interviewer: and if you are at home, do you play?
Child C: mmm, only with iPad I play.
Interviewer: which games do you have in your iPad?
Child C: I watch football, I have a game in iPad.
Interviewer: if you play at home with iPad, or play here or play football outside, what is your favorite thing?
Child C: oh, and cycling, not football
Interviewer: yeah, and cycling
Child C: I like it so much to cycle!

**Episode 19 (session n.4)**
Interviewer: what do you play at home?
Child H: nothing, I only play games.
Interviewer: Aha! Can you say which games?
[A level of noise around is raising, children ask something loudly]
Child H: what do you say?
Interviewer: which game do you like?
Child H: ehhh, iPad!
Interviewer: [playing] puzzle?
Child H: ehhh, then playing celebration
Interviewer: oh, celebration? Which one: a celebration for children?
Child H: ehhh, a celebration
Interviewer: a celebration for animals?
Child H: ah, but but where the elm can have present, soon eat food, soon get a present, ehhh, a cake.

During another session, Child H was also not sure how to name digital games but she managed to express herself quite clear:

**Episode 20 (session n.1)**
Interviewer: Do you like to play?
Child H: Mmmm, I like to play games.
Interviewer: which games?
Child H: like that (pretending playing with a joystick)
Interviewer: do you play it on TV or on computer?
Child H: no, just like that (showing a play with joystick again)

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35 iPad does not necessarily indicate a specific trade mark, but instead it refers to different types of computer tablets. Both staff and children at the preschool section called a tablet they had an iPad even though the producing company was not Apple.
Interviewer: Do you have a screen?
Child H: yes!

As for games with rules, football was the most discussed game with rules during the interviews. For example, Episode 18 has football as activity with stronger contributor than Episodes 7, 15, or 21 (below) have.

**Episode 21 (session n.5)**
Child D: (after finishing drawing fish, asking the language assistant): what to do?
Language Assistant: I do not know, you know!
Interviewer: maybe a football?
Child D: I will make one ball
Interviewer: do you like playing football?
Child D draws and says yes
Interviewer: oh, very good (about the drawing). Do you like playing alone or with your friends?
Child D: yes, I like playing football

Once again a distinction noticed between just playing or playing a game:

**Episode 22 (session n.2)**
Interviewer: do you like to play with your mom or with your dad?
Child B: with my dad.
Interviewer: aha! Do you play football with your dad?
Child B: no, only play. When I play, my dad also comes to play with me.

The conversation between Child H and one of the language assistants who was around the same table during the interview to help in case of a language translation would be needed shows an interested example of a play-game confusion which took place during a conversation (Episode 23). The language assistant talks about unstructured play which from her point of view is not a game or at least not a good game while Child H tries to explain some sort of game, which she is drawing. In case if it is not based on some digital game, then it is a game which Child H created herself. This game has some rules or must be played in a special order: one “twinkles the door”, another one opens the door, and then all of them eat. She says that ringing the door is maybe a play (contrary to a view of a language assistant), then turning back to her drawing she speaks about gaming again.

**Episode 23 (session n.4)**
Interviewer: What do you like to play?
Child H home game
Interviewer: home game? What is this?
Child H: first, they twinkle the door dilindilin, later one opens the door, then they eat food.
Language assistant asking to explain in child’s native language what is that “twinkle the door”, then she comes to the electronic key locker near the door, pointing at it: do you twinkle?
Child H: yes
Language assistant: at home? This is not a game, twinkling the door. Here or at home? Do you mean to ring the door: dilidilidili?
Child H: yes, that maybe play
Language assistant: at home?
Child H: gaming! drawing the game, this!
Language assistant: do you play it at home?
Child H: yes.
Language assistant: twinkling, twinkling… neighbors will be angry.
Child H: no

Toys and playing objects

Dolls and transport toys as playing objects have similar ranking as well as similar contributors, multiple but mostly weak. In this group there were few gender differences in preferences: more girls referred to dolls and more boys referred to cars, but there were both girls referring to cars and boys referring to dolls as well. However, dolls appeared to have stronger connection to the Locational category.

Child H while talking that she did not have dolls at home during the beginning of the session n.4. Close to the end of that session said that “yes, I liked my doll. I left it in y”. The next session n.9 had many memories brought by Child H about y – the city she was living before. During session n.8, Child J enjoyed talking about her doll, Lulu, which she has at home. Transport toys seem to not have a link to the Locational category, as well as these playing objects stay non-personalized - without special names.

Heroes or TV/computer characters and ball also have similar ranking but slightly different contributors: a ball has less but much stronger contributors from boys and average or weak contributors from girls. It is connected to the Locational category as well, mostly to the Outside characteristic of it. Episode 24 nevertheless shows an interesting association with Locational category (a wish to play with a ball at home) as well as a personalized feature of a ball (“maybe he will like me”).

Episode 24 (session n.9)
Interviewer asking about the drawing, which Child D made: what is this?
Child D: a house
Interviewer: do you play at home?
Child D: no, because there is someone living under us that is why I do not play. They will call the police.
Interviewer: yahoo, so you can’t play at home. But do you like playing here then?
Child D: no
Interviewer: maybe outside?
Child D: I would like to find a ball one day and play at home. Maybe he [the ball] will like me.
Child C starts speaking loudly
Interviewer: If you have a ball, will you play inside or outside, here or at home?
Child D: at home
Interviewer: will you play with a ball alone or with your friends?
Child D: I have no friends at home, so I will play with a ball
Interviewer: do you like running and screaming?
Child D: only a ball…
Child C: if you play football at home, where will you play, in which room?
Child D: at home.

Heroes and TV/computer characters have less strong, but multiple contributors than a ball has. Spiderman was the emerged theme during the very first interview when Child C wanted to draw it in response to the question about favourite play or toy. Child B also wanted to draw Spiderman (session n.2) but he could not manage, so first he drew a net instead explaining, “this is a net with which he [Spiderman] catches other people”, then he tried to draw something again:

**Episode 25 (session n.2)**
Child C: (showing his picture) look!
Interviewer: Spiderman’s net! Will Spiderman jump or run?
Child C: Spiderman will do like that with the net (showing how Spiderman spreads his net)
Interviewer: why do you like Spiderman?
Child C: mmm… (he re-ask the language assistant to repeat the question, then she does it). Mmm… he helps others.
Interviewer: that is very good, do you like to help people like Spiderman?
Child C: Hulk and Ironman, they are also good. Spiderman is not so strong.
Interviewer: oh, you know! Do you watch them on TV?
Child C: mmm, I watched Ironman.
Interviewer: (talking to Child B): can you draw [Spiderman]?
Child B: you asked me, I could not draw a Spiderman. I can only a doll.

During session n.4 we talked about a computer game, which Child H liked to play, but could not remember the name, she mentioned that the character was running a lot. When I tried to guess whom could it be I said Supermario and other children repeated the name Supermario several times, demonstrating that they knew this computer hero.

This characteristic embraces not only famous characters as Spiderman or Supermario but also some other figures from computer games, which might be not so familiar to many people. During session n.3 while talking about her favourite game, Child J mentioned a special character from a computer game, which she liked to play very much. I could not get a name of that character since that name was unknown to me and Child J talked very quietly. Session n.8 demonstrated that the language assistant could not get the name either:
Episode 26 (session n. 8)
Interviewer: which computer game is your favourite?
While the language assistant translates the question for Child J, at the same time Child C asks something very loud.
Child J answers very quietly while C is making a noise: Rayman
Language assistant: (re-asking J) what?
Child J repeats: Rayman
Language assistant still can not hear it clearly, she repeats it the way she has heard it, then guesses what can it be according to her: Rawan? Aha, allawn! Can be colour!

Since session n.8 has a recorded file, then it was possible to listen to J’s answer several times to discover that it was Rayman, a name of a computer game character which was not familiar to me, neither to the language assistant.

Another object in this characteristic, duck, has strong contributors from two children, while fish has multiple contributors of the strongest nature but from the same child. Fish as a toy has a solid link to the next characteristic; it intertwined with drawing in a very interesting way.

Artistic play
Drawing does not only represent the Artistic play’s characteristic but also it was itself used as a tool for children’s participation in the interviews: all children were invited to draw their favourite play or toys before each interview. Some children were making drawings during each of the interviews, while others were not. As mentioned at the beginning of this chapter, usually children did not share the pictures they drew, preferring to keep those pictures, to take them home or to cut them while playing.

When I was using my field notes pad, children often liked to leave their writings in it: the smallest children just came and tried to leave a note, copying my actions. Older children asked if they could do so. I always welcomed them to write or to draw something if they wished so they could not see my field notes pad as something unreachable or untouchable, but instead they could feel it as something they could participate in too. I was also explaining that those pictures they draw in my filed notes pad would stay with me. Maybe for that reason I have only few pictures at the end.

Sometimes I was making some drawings in my field notes pad at the same time when children were making theirs. Children saw my pictures and ask me to draw something especially for them in my field notes pad or on a separate piece of paper. Pictures they were asking me to draw were fruits, animals (that is how they were also practicing the new words they learnt in Swedish) or pictures of themselves.
Drawing as activity has weak, but multiple contributors from many, but not from all (see Episode 3 for example) children. Child J for example listed drawing as play (session n.3) on the contrary to listening to books that she said was “not play, just listening” (session n.8). Episode 27 demonstrates one of the essential results appeared under the described characteristics, which raises questions for discussion from both ethical and pedagogical perspectives.

**Episode 27 (session n.6)**

Interviewer (showing the pictures, which D drew previously, alone, and together with Interviewer in the field notes pad): you drew a lot of things here, is it a fish?

Child D: it’s not me who drew that (showing the fish, which Interviewer drew, see p.2, Fig.14)

Interviewer: aha, this is the fish, which I drew, but I also have many fish, which you drew (showing p.1 and p.3, Fig.14). Is it your favourite toy?

Child D: [pause]

Interviewer: or what is this?

Child D: I promised to God (as translated into Swedish by the language assistant) that it was not me who did it.

The language assistant turned to me smiling and asking, “can you believe he said that”? Child D reacted to the smile by giving a smile back then he started to giggle. Child D was the one who participated every time when the interview session took place, he stayed during both first and second phases and usually he was drawing a fish or a ball as his favourite toys and play. He was one of the children who asked to draw some pictures for him personally, observing the process of drawing with big interest. As Episode 6 shows, he was a bit moody before Episode 27 happened, so it is not clear whether the unhappy mood forced him to say about the promise or alternatively it was a drawing
session, which made him irritated about breaking this promise. It became also unclear how to interpret the Episode 28 (below) which happened in the previous session:

**Episode 28 (session n.5)**

Interviewer: D, can you draw your favourite play for me?
Child D: I will do a fish
Interviewer: Oh, every time you do fish!
Child D starts drawing his fish and closes one of his eyes with his hand free of a pencil. The Language assistant asks him why he does it like that. Child D answers that he cannot see well.
Interviewer: oh, what is this?
Child D: mmm…. Fish!
Interviewer: D, do you like fishing? Can you [fish]?
Child D: no, I do not like.
Interviewer: can your dad fish?
Child D: yes
Interviewer: how many fish did your dad get?
Child D: no, he did not get anything.

It stays unclear whether he was closing his eye due to bad vision or it was a way to avoid breaking his promise to some extent. Since researching religious views also requires obtaining approval from Ethical Board, but the project got an approval for only exploring playing interactions, further communication to know more about this interesting theme of whether religious views affect children’s artistic play and if yes then to which extent was not possible.

**Relational**

*Friends and other children*

Under this category the characteristic Friends has a leading position, mostly obtained with strong or strongest contributors. Child E, answering a direct question if she plays in a kitchen corner said: “I’m, I’m, I’m no, I am not playing, playing with A” (session n.). Child E indeed spend the majority of time in the kitchen corner playing with Child A, but as mentioned, she connected playing process only if her friend A was with her, otherwise it was not a play for her.

Friends often have a link to the Locational characteristic. For example, Child D mentioned the absence of friends at home while talking about a ball and his wish that the ball will maybe like him (see Episode 24, p.110), while Child C spoke about his friends connecting them to the countries he was living in:
Episode 29 (session n.5)
Child C: I like it so much to cycle!
Interviewer: with whom?
Child C: with my friends
[…]
Interviewer: Could you cycle in Syria or in Sweden?
Child C: I could cycle in Syria, in Turkey and in Sweden
Interviewer: oh, great! So you are an expert in cycling.
Child C: in Syria I had a lot of friends, in Turkey I had only one, in Sweden I have two.

Besides gender becomes more visible when children talk about friends. Child E, for example listed all the girls she played with at the preschool section by name, emphasizing her best friend, Child A, who had already left the preschool by the time we had an interview with Child E:

Episode 30 (session n.6):
Interviewer: Do you like playing with A?
Child E: yes
Interviewer: were you [two] friends?
Child E: I have friends, Syrian and Swedish, a lot!
Interviewer: how many do you have?
Child E: a lot. A lot of girls, they shop things for us.
Later in this session, Child E also mentioned girls in her visual narrative: “I am drawing the girls. I do not know how to draw the girls”.

While boys just talk about friends, girls often specify their friends to be girls, naming them:

Episode 31 (session n.9)36
Interviewer: if you can play inside or outside, which is your favourite place to play?
Child H: I like to play outside with my friends, their names are N, O and P- a small baby.

Apart from friends who were most important co-players, participants also mentioned other children they play with mostly in their answers to optional questions; so the contributors for other children were not as strong as contributors for friends. Child J who did not speak so much, nevertheless confirmed twice that she preferred to play with other kids during session n.3. Child H talked about children she liked to play with in the preschool section, including a little baby J with whom the Relational characteristic extends even further to parents:

36 In this and other episodes, capital letters in italics symbolize names of children and adults from outside of the preschool section.
**Episode 32 (session n.4)**
Interviewer: J is a small small one. Can you play with him?
Child H: yes, my mom knows his mom. My mom leaves me here.
Interviewer: do you like to play here or at home?
Child H: my mom’s name is L
Interviewer: oh, it is a very nice name!

*Parents and teachers*
Within the characteristic *Parents*, there is an interesting feature of emerging “playful father” (multiple references, for example Child J talking about her playing digital games with her dad during session n.?, also see Episodes 22, p.108 and Episode 11, p.102. A playful father figure appears in contrast to the mother who missed the playfulness essence herself or sets up limits for playing:

**Extracted pieces from different sessions 1**
Child H: yo, I only play outside but my mom says “do not do it”;

Child E: Mama does not know how to play with me, mama cleans the house, but [my] dad plays with me

Child H listening to Child E who talked about tickling play with her dad during Episode 11 (p.102), nevertheless had some doubts about playing ability of an adult. She asked Child E if E’s dad was a child.

This example also mirrored Episode 1 (p.84). This time Child H listened to translated answers of Child E, then based on the information she received, H asked Child E if E’s dad was a child.

While Child H was sceptical about adults’ active participation in funny play, Child C demonstrated that he was ready to accept an adult in play:

**Episode 33 (session n.2):**
Interviewer: if I want to play with you, what should I do?
Child C: if you want to play with me, I say –yes!

Among this group of children, characteristic *teachers* has very few but strongest contributors. Teachers appeared to have a connection with the Relational (as Episode 12, p.104 shows) and Locational (see Episode 36, p.118) categories; however teachers’ playing spirit was not emphasized by children.
Emotional

Basic emotions such as fear, anger, sadness and happiness were noticed during observations of children during their play and during interviews. Children named not all of them, but the description of children’s experiences allowed us to identify many of these emotions.

Fear as Extracted pieces from different sessions appeared as a limitation to play and in this particular case it was connected to Locational category: the unsecure feeling did not allow Child E to feel good; therefore she talked about play only in connection to happy mood and a safe place.

Anger was observed mostly while children were playing, not being mentioned directly, but it appeared during some narratives: Child H during session n.9 talked about her previous preschool in another city, where one child beat her “all the time”. She was angry while telling this story, emphasizing that her teacher tried to prevent it. The punishment for the child was to stay alone and not be able to go out which is mentioned as a heavy one to have:

**Episode 34 (session n.9)**

x, y, z – names of the cities

Child H: I started a preschool in x and home, then I started here, not in y.
Interviewer: do you like living here?
Child H: no, I like to go to z. but W who was in the preschool in z with me, he beat me. All the time.
Interviewer: ojojojoj
Child H: and I say to, she is called Q, my preschool teacher, who was saying – no, you cannot beat H, soon he sits on a sofa. All the time he will not go out. And he will be alone.

This strong emotional memory emerged when Child H talked that she did like her previous preschool very much; however the behaviour of another child made her angry.

The Emotional category connects to one distinctive feature. If for example in case of play-game division, both characteristics are presented in a category activity and do not couple in a dichotomous way; they just represent two possible varieties of playing activities. Happiness as a characteristic was connected or compared to its binary opposition – sadness – which usually referred to the Relational category:

**Extracted pieces from different sessions 2**

Answering a question “when you play, are you happy or sad” or discussing emotional states during play:

Child E: In the house I am upset, because I am afraid, but here happy;
(later in the same session) If Child A goes to another preschool, I will be sad
Child C: When I am sad, my dad asks me – why are you sad?

Child H: sad
Interviewer: are you sad?
Child H: maybe

Sadness being interrelated to the Relational and Locational categories reconnects children to their friends or the absence of friends in various places to a very big extent; nevertheless, it is only happiness which is listed under the Emotional category in connection to actual play. The answer of Child J who was a shy and not so talkative girl shows an example of an average, but very distinctive contributor. While answering the above mentioned question during session n.3, Child J added a special sound together with shaking her shoulders to indicate that she was absolutely not sad while playing. Comparing to her other answers, it was the most emotional response she gave during all the interview sessions.

At the same time while talking about emotions, play and locations, the most popular playing corner in a preschool – the slide – with the addition of the emotional dimension to it emerged as a place with embodied experience. After Child C and Child D were both laughing (Episode 2, p.84) and went into a happy mood, Child C was talking about slides and mentioned that “the person who has a big bottom cannot slide”. Child H had some memories when someone pushed her on the slide, but compared to her other story about the child who beat her (Episode 34), this experience was not connected to anger or sadness, and instead it was a playing moment which happened outside.

Locational

The characteristic Outside got multiple contributors under the Locational category, both of a strongest and an average nature. A wish to play outside was very strong among children in this group; sometimes despite of limitations coming from parents (see for instance the Extracted pieces from the different session 1). In the most cases outside was mostly referred to as an opposite to inside. It could also be a particular playing ground:

**Episode 35 (session n.5)**
Interviewer: where do you play it [football]?
Child C: mmm, outside. But it does not take a long time to go from home to play outside, to a place.

Preschool was the next most attractive place for children to play. As mentioned under the Activity category the preschool had two super popular places to play: a slide and a table for playing with dough. Emerging in children’s talking not only with the help of visual materials or interviewer’s questions,
these places had very strong associations with playing. It is interesting to notice that demonstration of visual materials of other places in preschool did not get a similar response. Older participants often just described the places and the meaning of the places (“here to cook”, “one can leave things on it”), showing where those places were situated but not mentioning playing as such. Younger ones were confirming that they liked the places, waiting for another picture to say “yes” to. However, this descriptive approach from children showed one tendency in their perception of a reading corner which had a sofa (Fig. 15).

![Figure 15. Image of a reading corner](image)

Based on observations for the smallest children, especially those who just started walking, it was often a “cuddle place” since when they were crying and asking to be soothed, teachers sat with them on that sofa, reading or signing to calm them down. The bigger children knew about the double meaning of a sofa: for reading which was not related to play as Child J mentioned in session n.8, and for sitting still in the case of misbehaviour:

**Episode 36 (session n.5)**
Interviewer: (showing a picture of a reading corner) what is this?
Child C: one can sit on it
Interviewer: can you read?
Child C: yeah! Maybe X (name of a teacher) reads for you there.
[a communication turn into discussion of an importance of a helmet for cycling]
Child C: If I don’t listen, I am left there

**Episode 37 (session n.9)**
Child H: no, you cannot run here
Interviewer: no, you cannot
Child H: if you run here, then you would sit there on the sofa
Interviewer: oh, it is a special place.
Child H: it is a cage.
Apart from digital gaming, which usually took place there, *home* as a characteristic was not such a popular place to play in. This can be connected to various reasons as followed:

- restrictions to play at home (Episode 24 – in this case Home was a desired place to play for Child D, but the reasons why one could not play at home are of general nature – not to disturb the neighbours)
- might be not safe there (Child E, Extracted pieces of different sessions 1)
- no favourite toys at home (Child H, session n.4)

*Home* as it appeared in some of children’s narratives among this preschool group is not a place with constant coordinates, but one of the stops on a way between countries and cities (Episodes 29, 34).
CHAPTER 6
Observation results

This chapter focuses on the observations being analysed with the help of GridWare software to bring answers to the questions about playing interactions’ patterns among newcomer children; specific features of playing interactions being a dynamic system are also explored.

As noticed earlier in the Procedures subsection of this work, first there was an introductory week, during which I was not using a camera, but just had my field notes pad with me. It was an introduction week not only for me so that children would get used to my presence and a role of an observer, some children did have their introduction to preschool during the same week or the week before. Hence, the parents of some children were with them during introduction for a short period on a daily basis – a common practice within Swedish Early Childhood Education.

For some children, my presence was something natural because they did not experience the preschool settings without my presence in the mornings. Once during the gathering time in-between playing sessions when the language assistant was asking everyone’s name and all together they were discovering who was present or absent, a language assistant asked a “tricky” question “where was Nadja” even if there was not my picture among other children and staff members pictures which were used every time at the gathering. Children turned their heads to the place where I usually sit during the gathering, pointing at me and laughing because it was an unexpected, but easily solved task to “discover”. Next time a child who had started preschool just a week before I joined the preschool pointed at me during the gathering to include me as the one who was present.

There was some ethical dilemma involved during the observation time – whether I should interfere some playing interactions or not. It mostly concerned rough and tough playing interactions among boys when the border between the end of play and the beginning of a fight was very thin. The other concern was about cases of indirect bulling when while playing some children
tried to protect their interactive spaces from the unwanted players. This phenomenon is described in the previous research on peer interactions – it is common for children to first gain access and then protect playing spaces, all these based on power relations and hierarchical structures among children (Corsaro, 2003). During some moments, it was hard to stay on the side and just observe what was happening. Children though realized very fast that I was not an ordinary staff member, but someone who in the majority of the cases do not “notice” the breakage of rules and who did not stop playing interactions from a position as an adult. Some children tried to involve me in their playing at the beginning, but since I was not a participant observer in a classical ethnographical sense (see p. 68), in most of the cases I had to decline playing offers.

There was two moments though when I had to act: once when I interrupted the hidden bullying cases and got involved myself in explanations of the inappropriate actions that took place; the other time I had to stop a fight. The first moment was in connection to verbal abuse that happened when one girl tried to disregard the drawing abilities of another girl in a quite rude form. The second moment connected to rough and tough play having crossed borders and turned into an aggressive fight between boys. All these moments happened when the staff members were not around, so I could not stand aside.

While a procedure for the primary selection of videos is described in chapter 4, during coding itself some further exclusion happened. As interviews results show, a table for playing with dough was a very popular place and activity; however for the external observer it often turned to be a “group play in solitude”, children gathered around the table, playing with dough in a silence without interacting with each other for short or long periods of time. There were some exceptions when interactions did take place and it was possible to detect them for the external observer, so these episodes were coded.

The similar situation was observed at the drawing table. Drawing, being quite a popular activity did not include interactions, but represented a solitude activity with a high level of concentration and silence involved in doing it, for that reason drawing episodes were excluded from coding procedure.

Another activity which was excluded from coding is doing a puzzle. There were indeed some difficulties involved in the coding procedure, since parameters used for observing social playing interactions could be applied to jigsaw puzzle activities only with some restrictions. However, if playing with dough and drawing episodes were excluded from coding mostly due to the solitude characteristic of these types of playing activities, doing jigsaw puzzles was excluded from coding due to its’ different nature (next chapter will have a discussion about it). It is also worth mentioning that children themselves did not talk about doing puzzles as play, this activity did not appeared in their communication during the interviews. This might be because doing puzzles was not a favourite activity for children; however the observations showed that children spent considerable amount of time in the puzzle corner.
In this chapter, the results of coded observations visualised with the help of a programme GridWare 1.1 (Lamey et al., 2004), based on a state space grid analysis (Lewis et al., 1999) for a given system.

There are a variety of statistical methods, which could be applied in combination with results obtained from a state space grid analysis, but since the project is rooted in qualitative design, the programme is used for the very least of it, as a visual exploratory tool (Hollenstein, 2007). The tool is used for introducing dynamic systems concepts applied to newcomer children’s playing interactions and for the further exploration of these interactions. These interactions simultaneously take place on various time-scales:

- The micro-level or micro-genetic scale connect to real time playing interactions from second to second within play;
- The meso-level explores patterns in the dynamics of playing interactions based on the frequency of the process occurring at the micro-level (from play to play);
- The macro-level provides an opportunity to check changes over a number of playing sessions over a period of a number of weeks (Steenbeck et al., 2014, 254).

Any changes at one scale might affect all other scales, bringing changes to them. The results presented in this chapter capture changes at different levels based on mapping interindividual variability\(^{37}\) where interindividual refers to differences in the playing interactions between individuals at some point in time (van Vondel et al., 2016, 209). It is important not to forget that observations had playing interactions as a system in its focus. As Keiding (2010) puts it:

> [o]bserving interactions with interactions as a point of observation does not exclude the possibility of focusing on selected dimension of interaction. It could be specific persons or specific themes. Having interactions or selected dimensions of interactions as a point of observation simply means that interaction as social system is understood and explained with reference to interaction, instead of trying to understand it with reference to single contribution or single participants.

The results presented below connect to selected dimensions of interactions, which are different types of players (master and followers) with different status (rejected and accepted). A specific area of interest is used to compare how a system of playing interactions among newcomer children changes within this selection of different profiles of the players.

\(^{37}\) "coexistence of many different patterns of development" (van Geert, 1998), the results show some of these patterns of possible development of playing interactions.
Playing interactions were coded in terms of intensity of play, and every dyad is studied in the form of a sequence of several interactions over time. The time intervals between observations might vary (see Table 8, p.97), but all of the observations are sequentially ordered.

As noticed above, the GridWare programme (Lamney et al. 2004) is used for visualisation and exploration purpose, not for any further quantitative analysis. However, there are few grid measures, which were useful for better exploration the dynamic system of playing interactions of newcomer children and understanding attractors for such a system. These are:

- **a)** number of cells, visited by the DS trajectory;
- **b)** number of observed events in a cell or region;
- **c)** number of visits (each visit can include several repeating events) to a cell or region;
- **d)** mean duration (within the region of each trajectory in the group).

A trajectory represents interactions, plotted simultaneously for minimum of two participants of play, consisting of multiple events – changes in intensity of play. For ex. Fig.9 (p.94) shows a trajectory of playing interactions during one of the sub-episodes happened near the slide. This trajectory has several events, plotted on a grid, and it demonstrates the process on the micro-level time scale. The meso-level time trajectory has several playing episodes included and analysed; the macro-level has several meso-level trajectories included into analysis, which provides opportunities to discover attractors.

Hollenstein (2013) describe several methods for attractors’ identification, for example, high values of the described measurements **b)**, **c)**, and **d)** indicate strong attractors. In case of measurement **a)**, high values indicate high variability of the system and its low stability (Martin et al., 2005). The other possibility to identify attractors is to do it in advance on the basis of theory (Pennings and Mainhard, 2016, 24).

Within this project, the region of cells studied in every macro-level case (a number of playing sessions over a period of few weeks) corresponds to a specific area of interest. As we will see, real attractors might be situated in different areas of state space grids. Nevertheless, one of the aims of the project is to find out patterns of playing interactions which help the later to continue, so it becomes logical to explore a particular region of medium and high intensity in contrast to the regions where low intensive play or non-play happen despite of a possibility for these regions to be attractors’ basins. Such region of interest or more precisely the borders of the region is marked by yellow in all examples demonstrating macro-level cases and one example of meso-level case.

There are several examples given to visualize dynamic systems concepts occurred at different levels among various players during observation time. The examples described in this chapter represent various structures or in other terms, variabilities of playing interactions happened among the newcomer children.
Example 1: “I’m, I’m, I’m no, I am not playing, playing with [my friend only]”: a dynamic system of playing interactions of fast-to become-friends and its’ attractors.

Participants and their status: Child A (follower player, accepted) and child S (master player, accepted)
Level of scale: meso- for the case a and macro- for the case b.
Lengths of episodes used for a trajectory’s construction: approx.32 minutes for the case a, approx.103 minutes for the case b.

In this example, coded episodes took place during several days of week two and four of the study. Case a represents the meso-level of the process of playing interactions when the frequency of interactions occurred from play to play, while Case b shows dynamics and changes in the process of playing interactions over a longer period. This example also demonstrates some visual differences between playing interactions at the very beginning and at the end of video observation.

The cells under discussion have their names by giving the number for the child on x-axis first and then for the child on y-axis. For instance, observed low intensive (2) playing interactions of a-axis child and medium intensive (3) playing interactions of y-axis child give results in cell number 23. As noticed earlier, the specific area of interest or favourable attractors’ state include cells 33, 34, 43 and 44. This area is marked by yellow border (see Fig.16, below)

![Figure 16](image)

*Figure 16. Given numbers for the cells on the State Space Grid with a favourable attractors’ state, marked by yellow border*
Case *a* shows the dynamics of playing interactions during play sessions at the beginning of observations (Fig.17). Case *b* shows dynamics occurred during play sessions at the end of observation (Fig.19). We can see alterations in intensity of playing interactions, and changes in the length of playing interactions.

The dyad in this example was formed right at the beginning of the observation. Child A started at the preschool unit almost at the same time as the study started; thus the observation followed the development and changes of the playing interactions in this dyad from the beginning until the end when Child A left the unit because she got a place in an ordinary preschool. Child S and Child A spoke the same language that helped to build their relations much faster than in other cases when children spoke different languages. Child A was a follow player, gladly joining almost all activities that Child S proposed, innovated or being involved in. Child A was quite independent though and demonstrated that she would follow those activities which were interesting for her.

Child S was one of the most talkative children in the group. She was a master player, who easily found something to play with, but the best play for her was only with Child A, she confirmed that in one of the interviews. She emphasised that she only played with her friend; otherwise, it was not a play (this quotation stays as a subtitle for this example). Her style of communication was often to “make orders” in a very high voice what to do for other children; alternatively she was just screaming their names to attract their attention.

A dynamic system, which emerged in this dyad, was more chaotic at the beginning of the observation (Fig.17, see next page). One can see that attractors basin situated in 11 cell, which means that playing interactions did not last long, they were often interrupted and for that reason the system returned to its’ neutral intensity state. Child S often tried to initiate a play, but Child A was not yet familiar with Child S and did not support her attempts at the very beginning (cells 21, 31), for this reason the playing episodes were not long and often finished unexpectedly.

Fig.18’s panel shows the further development and changes that took place in the playing interactions during video observations few weeks after. We can see how the dynamics of a system takes its shape and how the basin of attractors, situated in 33 cell is forming.

Fig.19 representing the macro-level of a scale clearly demonstrates that a basin of attractors for this dyad’s playing interactions formed in the favourable area of medium and high intensity of playing interactions.
Figure 17. State Space Grid, representing dynamics and changes occurred in the process of playing interactions of Child S and Child A, case a, meso-level.

The visible shape of the system (Fig.19) could describe a certain “algorithm” of a system’s behaviour. Cell 13 where the system spent some time indicates that at the end of observations Child A was the one who was often up to play (medium intensity), but the absence of involvement of Child S did not let the play to move on.

It can be connected to the fact that Child S was spending a big amount of time on controlling the play: she was deciding who was allowed to join and what they were supposed to be doing during the play session. She was very keen on others not to be able to disturb or change the play of hers and Child A in a way they would not accept. Child A supported her by being able to return to medium and high intensity play directly after neutral intensity play, which happened when Child S was controlling the access to play for example. Closer to the end of observations the system was emerging faster and becoming more stable; its patterns became more visible, its attractors were progressively formed mostly at the times when other participants accepted the appointed roles and followed the play script without active attempts to change it.
One should note that data describes the structure and dynamics of the system as a whole, as a system of children involved in playing interactions alone with other various patterns, which were emerging and being able to reproduce themselves in each new episode. This helped the system to continue its process of self-organisation. Participants played a big role in this process but they were not the only patterns in the system. The next chapter would look into more details on what was happening when the playing interaction system reached and stayed in medium and high intensity states.

Table 9 (below) shows a big difference between example one and two. While in the first example basin of attractors is situated in a favourable area of the study (yellow borders), the second example do not have that area as attractors’ basin. During the coded time for macro-level scale that was not so different between these examples (103 minutes for Example 1 and 90 minutes for Example 2) we can clearly see the difference in grid measures between attractors and non-attractors area.

A dynamic system in Example 1 is more flexible in both cell range and numbers of events happening. It also has twice more visits into medium and high intensity area, plus it spent almost six times more time in that area. As it was noticed earlier, high values of number of events, number of visits and duration indicate strong attractors for the system. Higher values of cell range demonstrate high variability of the system. We can find all these high values in the first example, it becomes even more clear in comparison with the second example where the favourable area of medium and high intensity of playing interactions does not refer to attractors’ basin.

Table 9. Region grid measures for macro-levels of the first and second examples

<table>
<thead>
<tr>
<th>Example number</th>
<th>Cell range</th>
<th>Number of events</th>
<th>Number of visits</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>24,333</td>
<td>14</td>
<td>1,297,667</td>
</tr>
<tr>
<td>2</td>
<td>2.25</td>
<td>10</td>
<td>6</td>
<td>228,5</td>
</tr>
</tbody>
</table>
Figure 18. A panel, representing three different State Space Grids for playing interactions’ episodes between Child S and Child A.

Figure 19. State Space Grid, representing dynamics and changes occurred in the process of playing interactions of Child S and Child A, case b, macro-level.
Example 2 “I have no friends [...], so I will play with a ball”: a dynamic system of playing interactions of friends-to-become and its’ attractors.

Participants and their status: child D (follower player, accepted) and a primary playing partner (most often child C, master player, accepted). Level of scale: macro-. Lengths of episodes used for a trajectory’s construction: approx. 90 minutes

In contrast to the first example, these participants of playing interactions did not often speak the same language, in the majority of cases when Child D played together with Child C, they could understand each other quite well since their languages belonged to the same language group. Nevertheless, there were several episodes when they could not continue to communicate verbally because they did not recognise the meaning of some words. This dyad was found of rough and tumble play, which was stopped by the teachers or assistants in many cases.

Child D was a follower player who was involved in many playing interactions initiated by Child C. In case if it was just a primary playing partner, Child D’s involvement in play was usually much shorter or did not happen at all. This dyad was constantly under control of the staff to prevent their play from getting “wild”, that means it would get too noisy or too tough which was against the rules of inside play. Child D could spend a reasonable amount of time with building blocks or playing with the cars, during this time he was not eager to be interrupted by other children. It was a difference in how he treated other children – if they were of the same age as he was then he communicated with them without trying to be careful. If they were younger, it could be observed that he started being more careful, allowing them to do things, which would never work with the peers, for example to join his solitude play without resistance or not to react when they could destroy objects built by him earlier. At the beginning of observation (and his time at the unit) he was constantly stopped by the staff from doing specific actions: during the play he could catch the other child’s neck between his arm and elbow. It looked like he was about to suffocate the other child. The staff reacted fast by taking him from that child and telling not to do it in a very strict voice. At the beginning Child D looked a bit confused, after some time he was doing it just to check the reaction from the staff, then he stopped doing it often. Only during the analysis of video recording, it became obvious that this reaction was somehow connected to his emotional state, when he was happy and excited he did it to the playing partner. It was only Child C who reacted to this action as if it was an emerging playing pattern. They could start “wrestling” or rough and tough play, which soon was losing the playing element and turned into fighting. This type of
expression of happiness or excitement was not appropriate at the unit, neither other children understood it as something positive. It stayed unclear whether Child D just repeated some playing interactions, which he learnt before or whether it was hard for him at the beginning to express his emotions in an appropriate way for these settings.

The general observation reveals that when Child C was not present, Child D was often just moving around other dyads or individual players, observing them a bit, and then continuing playing by himself. It looked like there were no other systems around which could take him in for a long time; alternatively, he was not eager to participate himself.

The system which is emerging while Child D is involved in playing interactions has its attractors basin in cell 11, which indicates that the system is constantly returning to a neutral state, besides there are more non-playing episodes than playing ones in this dyad. This links to the disturbance form the adults who are stopping all rough or not appropriate actions alone with specific vision or perception of what is play for Child D. In the interview at the beginning of the study, he talked about having no friends to play with and for that reason he would rather play with a ball.

The emerging system is quite chaotic with not as clear image as we can see in the example one. The development of the system has a non-linear character as the third and fourth episodes from a panel in the Fig.20 can demonstrate. The third episode took place closer to the end of the observation period when the friendship was reaching a good level of comprehension between Child D and Child C. However, the system did not follow the same dynamics, as with children in the first example – the patterns in this system were not yet formed to be able to reproduce themselves in each new situation; that is why the system tended to return to neutral state and stay there.

Episode 3 from the Fig.20’s panel includes playing interactions between both Child D and Child C, while episode 4 happened during the day when Child C was absent, so Child D was mostly playing with a primary playing partner. We can see that there is a slight difference of how strong the attractor (cell 11) is; episode 4 when Child D played without his new friend has a system, which stayed in cell 11 longer but not critically longer than in episode 3 when Child D had a new friend to play with. What makes a difference and what is interesting for the study is that in episode 3 there were more cells visited by the system, including cells 43 and 34, which were never reached in episode 4. It means that with the presence of a friend, even if the system was often in a neutral state, the participants did enjoy the playing interactions in full since the system was reaching medium and high level intensity.
Figure 20. A panel, representing four different State Space Grids for playing interactions’ episodes between Child D and Child C or primary Playing Partner.

Figure 21. State Space Grid, representing dynamics and changes occurred in the process of playing interactions of Child D and Child C or Primary Playing Partner, macro-level.
Example 3 Other variations of dynamic systems of playing interactions

3.1 Shift phase in playing interactions
Participants and their status: Child J (follower player, rejected) and a primary playing partner.
Level of scale: meso- for the case a and macro- for the case b
Lengths of episodes used for a trajectory’s construction: approx. 34 minutes for the case a, approx. 48 minutes for the case b.

The previous examples included participants of different levels of mastery in play, but all had accepted status as a playing partner. Example 3 has variations of playing interactions with participants who had rejected status (3.1 and 3.2). Child J is one of those children who was not accepted to others’ play for a long time. Child J was a very shy and quiet child. Her favourite activities were colouring at the drawing table and playing with a dough. At the beginning of observation she often did those activities in loneliness. She was trying to approach other children, Child A and Child S in particular, by standing near them and watching their play. All three children spoke the same language. Children A and S simply did not react at all and even tried to push her away from the play. Sometimes she resisted go away and kept watching their play for a while, then returning to drawing table or in a situation when others left a space to avoid her, she continued playing alone.

During gathering time (samling) she never said her name when everyone was calling out theirs. It was a game going on during samling when a teacher started to sing a song and was passing a little drum in turn to everyone to sing their names and to make some rhythm with the help of the drum. It was one of the very wishful things to do among all kids but Child J. The teachers tried to involved her by offering her a drum and suggesting to play it together, but Child J was just sitting still and did not want to play it. It lasted for half a month until one day all of a sudden for everyone (field notes), Child J put her hands on the drum and lightly banged on it. The teacher reacted very happily, cheering her up a lot.

She felt freer to communicate with adults mostly non-verbally by smiling or showing her drawings to them. The staff attempted to suggest that others include her in their play, but it did not work for the majority of times. One episode of the video observations captured the essence of the state she was in at the beginning of the observations. I was recording playing children in one room, then kids left the room and moved to the other one, while Child J stayed alone and continued to play with dolls for a short period. The neighbour room was full with kids playing and making noise, everyone was doing something near the blackboard or a reading sofa, the music was playing and one could hear the pleasant noise from happily playing children enjoying their activities.
To be able to capture all actions, I was sitting near slides and camera was recorded actions in both rooms. After some time, Child J came closer to me, leaning against the wall between the rooms. She was sad at the beginning, but I started to smile at her and she was smiling back to me. It was such a difference between what was happening in two rooms, divided by the wall as this wall was not only a material thing build between the rooms but also a border separating two systems of interactions – one was very dynamic and alive while the other one could not emerge at all. The picture appeared from the video records showed this moment so accurately (Fig.22, below), capturing the emotional patterns existed in play and non-play states.

Figure 22. Child J as an outsider of a system of playing interactions

The big change happened once when the first dyad (Child A and Child S) allowed Child J to join their play. There were no adults around so all actions were initiated by children themselves, not by adults trying to organise their play together. It took a few other weeks for the system to start emerging on a more or less regular basis, but the moment which contributed to a phase shift was captured during meso-level case a (Fig.23, see next page).
Figure 23. State Space Grid, representing dynamics and changes occurred in the process of playing interactions of Child J and Primary Playing Partner, case a, meso-level.

Figure 24. State Space Grid, representing dynamics and changes occurred in the process of playing interactions of Child J and primary Playing Partner, case b, macro-level.
In this variation of playing interactions, we can visually observe the phase shift. It happened when the system started changing its behaviour and emerging patterns were reproducing themselves in a different state. At the beginning of the observation the system of playing interaction that involved Child J was almost absent. If coded, it would just stay in cell 11 for a big amount of time. Yet a meso-level case $a$ captured a big change in the system (Fig.23). As we see in cell 21 Child J had several attempts to join the play, but she was never successful mostly because the primary playing partner showed no interest in playing with her. After the majority of time spent in cells 11 and 21, the system reaches cell 33 (Fig.23). It means that all participants had medium intensity of playing interactions. Since this change took place (as macro-level case shows, see Fig.24) the dynamics of playing interactions alters its shape, becomes more flexible and extends as far as up to a cell 44 (high intensity). The favourable state is not yet a place where attractors’ basin is situated (it still stays in a cell 11), but what we can call positive dynamics becomes more visible – cells 33 and 44 confirm this observation.

3.2 Strong but conditional basin of attractors of playing interactions
Participants and their status: child B (follower player, rejected) and a primary playing partner.
Level of scale: meso- for the case $a$ and macro- for the case $b$
Lengths of episodes used for a trajectory’s construction in minutes: approx.27 minutes for the case $a$, approx.66 minutes for the case $b$.

Child B was another child with rejected status. He had a very difficult time to adjust to the preschool unit; the introduction period when his parent was present came to its end, but Child B did not show signs of feeling good at the unit. He spent most of times close to the adults, especially the language assistant who could speak his mother tongue. He liked her very much and even called her mother few times. He was crying a lot at the beginning sometimes trying to induce vomiting so the adults could stay with him all the time. He often complained about feeling not well and asking the staff to call his parents to pick him up. The staff were trying to involve him in many activities with the other children, but the playing sessions lasted were only those with adults involved. He never ate during the break when children were offered fruits, once explaining to the teacher that he is overweight and should not eat much.

The situation got better after two weeks from the introduction period. He stopped crying so much or at least he stopped inducing vomiting. His involvement in playing interactions increased, but mostly when the adults were around. The other children were quite indifferent or not so eager to include him in their interactions. However, after some improvements in his wellbeing at the unit, he started to turn back to his dark mood, feeling sad and did not want to stay at the unit. Once at the gathering session he refused to say what
was his name was in Swedish (samling’s time was often used for studying some Swedish), saying that he would not speak Swedish; otherwise his mother would not understand him. He made it as a joke and laughed about this fact together with the others.

The situation in his family was very unstable. The parents were refused refugee status and Child B could not have access to the unit anymore. The mother was crying when she was talking about it with the staff. According to them, she was not so healthy, but refused to ask for medical help as she assumed her poor condition could affect the decision from the migration board. She came to pick up Child B and talked to the teachers about the situation. As Child B said to the language assistant, it was the happiest day for him because he and his family would finally have to return to his motherland and he would meet his grandmother who really loved him. She would hug him and she would make his favourite food (a personal conversation with the language assistant).

Fig.25 demonstrates that an emerged system in this variation has very strong attractors situated in cell number 22; that means the majority of the time the system spent in a low intensity state. Both meso- and macro-level cases show that during moments of emergence (transparent not in cell 21), Child B was in a low intensity state while the primary playing partner, in this case an adult, did not participate in playing interactions. Such situations repeated many times as the size of a not demonstrates.

The conditionality of this variation links to the presence of adults. Without them interactions did not happen and these multiple moments could be observed in cell 11 (Fig.25). It is interesting to notice that Child B could progress towards high intensity play (cells 43 in both cases), but primary playing partners never enter that state. So dynamics of this variation of playing interactions was clearly dependant on adults’ participation, but adults never interacted at a high level of intensity. The macro-level case (Fig.26) shows development of interactions, which became more flexible and the time spent in cell 33 increased. It indicates that at the end of observations the system became more flexible, it was able to visit certain cells more often, which provided an opportunity for Child B to experience playing interactions in full at high intensity.

Table 10 (p.138) contains information about the favourable state in all variations of this example. Examining the two rejected children J and B (numbers 3.1 and 3.2 respectively) we can observe that the dyad to which Child B belonged has higher values in all measures; nevertheless the system never reached cells 34 or 44. In contrast to this, the less flexible system of interactions to which Child J belonged spent less time in the favourable area, but at the higher state of it.
Figure 25. State Space Grid, representing dynamics and changes occurred in the process of playing interactions of Child B and primary Playing Partner, case a, meso-level.

Figure 26. State Space Grid, representing dynamics and changes occurred in the process of playing interactions of Child B and primary Playing Partner, case b, acro-level.
Table 10. Region grid measures for macro-level of the third example

<table>
<thead>
<tr>
<th>Example number</th>
<th>Cell range</th>
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<th>Number of visits</th>
<th>Duration</th>
</tr>
</thead>
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<td>2</td>
<td>16.5</td>
<td>12.5</td>
<td>377.5</td>
</tr>
</tbody>
</table>

3.3 Highly flexible dynamic system of playing interactions
Participants and their status: Child F (master player, accepted) and a primary playing partner.
Level of scale: meso- for the case a and macro- for the case b
Lengths of episodes used for a trajectory’s construction: approx. 16 minutes for the case a, approx. minutes for the case b.

Child F was the youngest participant in the interviews and video observation. At the time when he started the preschool unit he was 3.5 years old. At the beginning I was not planning to include him in the interviews because of the limitations connected to his speech development. He was not yet speaking clearly, using a lot of child language, which only his parents could understand or guess. Nevertheless, Child F wanted to be included himself and it turned out that he could contribute to the study non-verbally. Besides, he was an excellent communicator and a master player of a high level.

Due to his age, he was not yet so dedicated to making friends or playing only with the friends, he enjoyed playing alone a lot. He could easily join others’ play and due to his mastery level of play, he was always welcomed by other participants whom he could join easily but also leave the play at any moment when he lost his interest. The building block corner and dough table were his favourite places. He could be described as a very self-confident and happy child during most of the time of observation. His introduction period went smoothly, after it he was upset a little bit in the mornings when his mother left him at the preschool, but with the help of the adults, he could switch his attention to play very quickly. What was noticeable is that he had a high degree of independence in play with a keen interest and curiosity for new things.

The system emerged between Child F and his primary playing partners reminds us of the previous variation since the attractors are also situated in cell 22, but the structure and context of the interactions do not look alike. For Child F there was no difference whether his playing partners were adults or children; he could play with almost everyone. The system had a high degree of flexibility; it reached more states and did not spend so much time in cell 11 as the previous variation did. There is also a difference in how dynamics of this system developed. It tended to stay in a favourable area longer periods of time (see Duration for 3.3 in Table 10) and reached high intensity state.
Figure 27. State Space Grid, representing dynamics and changes occurred in the process of playing interactions of Child F and primary Playing Partner, case a, meso-level.

Figure 28. State Space Grid, representing dynamics and changes occurred in the process of playing interactions of Child B and primary Playing Partner, case b, macro-level.
One can notice that the dynamics started to take its shape at the beginning of the observation (Fig.27, see previous page) and continued to be formed by similar patterns closer to the end of the observations (Fig.28, see previous page).

To explore the patterns of the systems in all examples and variations with the focus at the favourable area of medium and high intensity of playing interactions is the aim of the next chapter.
CHAPTER 7
Compilation of interviews and observations’ results

This chapter brings the descriptive analysis of both results from interviews and observations together to contextualize and extend the discussion of playing patterns, discovered in the previous chapters.

Observing Relational
During interviews, children emphasized the role of their friends in play very clearly. Friends became the top priority within the Relational category. Observations just confirmed the idea of the necessary involvement of friends in more stable versions of systems of playing interactions, meaning that the system could be back not only to its existence but also to the attractors’ state within a short period. The system which has attractors directly in a medium and high intensity of playing interaction was observed between fast became friends (Child S and A). The longest playing sessions were also detected within this dyad. This does not mean, however, that children who did not have friends yet or did not have them on a permanent basis (this could be a situation for children with rejected status) were ever part of a dynamic system, which reached medium or high intensity of play as we could see in the previous chapter. Moreover, to a high extent the length of playing sessions depended on the type of activity involved.

It was also observed that girls tended to have longer playing sessions than boys who switched from one activity to another more frequently. Dynamics of boys’ playing interactions had higher variability, but it was less stable and did not stay long in one state, the periods of interactions were shorter and the switch from one activity to another one happened more often.

Episode 1 demonstrates one of the playing interactions happened at the beginning of the period of observation. Child S and Child A were at the very beginning of their friendship relations, so it is interesting to see how a dynamic system was coming into existence within this dyad. There are several attempts by Child S to initiate playing interactions and we can see various levels of
intensity of play (in italic) before the system starts self-organising itself for a longer period (the final play at the kitchen corner).

Observation episode 1

Child S was moving from one circle to another, she stayed with a language assistant to make a puzzle for a while; then joined a dough table and moved to the drawing table. She becomes interested in what Child A drew, asking her and smiling. Child A is not in a mood for explanation, she turns away from Child S. Child S stands near the table and watches through the window. The preschool teacher is occupied with a small child next to her, offering that child a new image to colour. Then turning to Child S who says something in her native language. The teacher says that one can draw and shows what it means with her hands. Child S nods her head. The teacher says that there are different colours and starts colouring herself. Child S watches. The small child is about to fall down from the chair, so the teacher helps her to sit better.

Child S starts watching how Child J and the teacher colour their pictures. She runs around the table and picks up a half-coloured picture, showing it to Child A. Child A shows hers. Child S puts her finger up and explains something to the teacher. The teacher smiles at her, saying “a-ha”. Then Child S moves to a slide, puts a paper on a slide and watches how the paper slides down. She repeats it several times. This catches Child A’s attention who was just passing by. She stood next to the slide and listens to some explanations from Child S, smiles then runs away.

Child S climbs up to the slide and screams Child’s C name. He does not react; instead Child B comes close. Child S slides down together with a paper. Child B slides down after her. Child S is not interested to play with him, so she leaves and sits at the chair near the slide. After a while, she starts screaming Child F’s name, showing her paper to him. Child F does not react first, and then comes close to her. At the same moment, Child A comes to the slide too. Child C comes with a ball and holds my hand to make me move and start playing a ball with him. I record what is going on at the slide with one hand and play ball with Child C with another hand. Child S continues to search for a play partner, this time she screams Child D’s name several times. Child D lies under the table with some Lego pieces to play with and does not react. Child A still sits at the top of the slide, but now there is also a small child 1 who is ready to slide down. Child S climbs up to the slide, says Child’s A name and pushes a small child 1 to start sliding. She starts laughing loudly and Child A joins her laughing. Child S still has a paper in her hand. She climbs up to the top and hugs Child A and they slide down together, laughing. They continue sliding. Small child 2 approaches the slide, Child S tells her not to climb in attempt to control who can slide. Small child 2 tries to climb, but Child S screams not to do it. She gives her paper to Child F who stands next to the slide and together with Child A they climb the slide again, laughing when going down. A few small children come and start sliding; Child S loses control of the situation. She waits until Child A slides down and takes her hand to bring her to the reading corner. Child A stays there for a while to look at the book together, but leaves soon.

Child S climbs at the top of the slide and stands there. Child A brings a piano toy from the other room, switches it on, Child S hears the music and starts dancing first. Child A joins her dancing. They look at each other and laugh. When the dance finishes, Child S makes a spyglass out of her hand and
watches around. When she sees Child A, she starts laughing, Child A finds it funny and joins her laughing. Then Child S plays that trick with Child F, he starts smiling. Child S gets out of the slide, takes Child F’s hand and they go to the other room, joined by Child A. All of them start playing near kitchen corner. Child F leaves the corner soon, but Children S and A continue their play until it is time for gathering.

Further observations reveal that the more children S and A know each other, the faster the system could emerge in every new playing situation, so that the time from the beginning of the play to the time when the play reaches a medium or high level of intensity gets shorter.

Nevertheless, it was not the case for friends-to-become Child D and Child C. In their dyad, the emerged system was more dynamic at the beginning of observations, so that they tried as many activities as possible for shorter periods; then the system got less flexible but the sessions did not get longer as in the case of Child S and Child A.

One should also notice that depending on the status of a child (accepted or rejected) and the level of her mastery in play (master or follower), the system of playing interactions could have different dynamics. For example, Child F, being a very skilled master play despite his early age, often did not need other children or adults involved in playing interactions. He could spend a considerable amount of time enjoying play in solitude, but almost always welcoming other children to join him or joining others himself. This might be connected to his early age when the presence of friends are not such a necessary pattern for playing interactions or this could be connected to his high level of mastery in play. The high mastery level allowed him to reach medium and high intensity of playing interactions in various situations with other children, not necessarily with his friends as the given above example shows.

The situation with children who tend to follow others plus having rejected status was different. As example 3.1 in the previous chapter confirms, despite weak attempts by Child J to join the playing interactions, she was often “not seen” or accepted by peers. Adults’ intentions or recommendations for other children to include Child J in their play did not have any success. Only within the Relational category a huge change did happen one day when Child J was accepted and included in the playing interactions of Child S and A. Episode 2 describes the very moment of inclusion or by dynamic systems terms the phase shift, which brought the playing interactions at a completely new level. The episode is quite long since it contains not only the description of inclusion of Child J; it also has few other moments worth mentioning in connection to other participants. One can follow the text in green first to see the neutral state of interactions for a long period, with a weak attempt of Child J to join the play and resistance of others to notice her or allow her to play with them. The system stays in the neutral or low state until the moment when Child A all of
a sudden first starts “noticing” Child J, then letting her in the playing interactions.

Observation episode 2

The group of children are next to the building block corner. A quiet, relaxing music is playing in another room. Child S and Child A search for something in a box with building blocks, *Child J sits next to them and just watches*; today she has a princess dress on top of her own clothes. *They do not turn to Child J, so she is just present, but it seems that they do not notice her.* Child A stands up and brings plastic ice creams, putting them between herself and Child S.

Child H plays with two empty plastic boxes; she has a plastic dog and a soft dog in one of the boxes, she sits in another one and starts pushing the box so that it slides on the carpet. She makes a trip in the box and arrives closer to Children A and S. They are not interested to look at her, so she checks what they are doing and continues playing by herself.

Child J turns away from S and A and starts thumb sucking. S and A notice that H uses a box, which they usually have for their baby-mother play. Child S throws away the dogs out of the box. Together with A they try to take the box away from H. H resists, saying “nooo”. A language assistant comes, takes the boxes, asking the girls to stop fighting. *Child J sees the toys thrown on the floor and stats touching the plastic dog.* When the assistant fixed the fighting and took away the boxes, *Child H notices that J starts playing with her dog.* *She comes to her, touches her head so that J start seeing her and shows with her finger not to touch the toys.* Child J stands and leaves. A language assistant helps to fix the dress for J so that it would not fall down. *Child J sits next to A and S again to watch their play.* Child S brings more things from the kitchen corner to the building block place.

H continues to play with a horse and a dog for few seconds, then leaves to pick up a ball. She initiates a football game with a language assistant who kicks the ball back to H. Child H laughs and gets into the football game quickly, kicking the ball, picking it up etc. A small child tries to join football while a language assistant goes to help to another child in the room. Child H excludes a small child; she only wants to play with an adult. One assistant leaves for another room; then comes the second assistant, who starts playing football with H more actively. She laughs again, never agreeing that it was a goal into her “nets”.

Child S screams Child’s H name to come and join them, but she is busy playing football. Child S serves the plates with Lego pieces to A and a small child, then leaving a plate for H next to Child J who was sitting there for a long time unnoticed. While S is busy with a small child, *J touches the plate and starts “eating” the pieces. Child S notices that but does not say or do anything,* continuing to call Child H to join the served food. Child J turns away from the group and starts playing with a figure she saw next to her. The music stops. *She turns back to the group again when they start cleaning plates.* Child S leaves to put some of the things to another corner, Child A tries to pick up all fruit and ice-creams. Child J leaves the room. At the same time, H continues to play football with a language assistant, then Child D joins. H is not so happy about it but let him play because he has better level of mastery than a small child does.

Child S and A now plays near kitchen corner, joined by a small child. *Child J comes back to the kitchen corner, sits next to Child A who first smiles at J, then pour some tea to a cup, standing next to J. Child A also starts drinking*
tea. Child J takes the “tea pot” to add more tea to herself. Child A does not protest, but looking at J, smiling and continuing drinking tea. They start having some routine in order to add tea to each other, they do it in turns, having a special rhythm. When this period of tea drinking is over, Child A leaves the table and checks what S is doing. Child J continues drinking from her cup alone. When A is back to the table, J confuses the pieces and instead of drinking from the cup, she starts drinking from the “tea pot”. Both notice that and start smiling. Child S cleans the table from the cups and offers plastic ice-cream first to her friend A, then to Child J. They accept it and start eating ice-cream, showing it to each other as A had a strawberry ice cream, J has a chocolate one. After the ice cream, it is time to serve the cake. Child S let Child J stands near the oven where she puts Lego pieces on the plates. Child J carefully takes a plate with a Lego cake to bring it on the table and starts eating it. Child S asks where it tastes good. Child J nods her head. Then S brings more to J’s plate. After both J and A eat their cakes, all of them move to the dolls corner. Child A leaves the room.

S and J stand there in silence for a while, watching each other until S starts smiling at J. J smiles back and shows the skirt of her princess dress to S. They stand and smile to each other from time to time. Then S screams child A’s name, she is ready to run to another room to search for her friend. She takes Child J’s hand to run together. They all meet near the slide and start sliding in turns, increasing the rhythm, laughing more loudly.

The relational pattern (inclusion as one side of it) was the most important thing, which dragged the system into the new level of medium and high intensity interactions. This pattern helped the system to change and start emerging on a more regular basis further on.

Child H who was a master player with rejected status at the beginning is another example of how inclusion took place but this time there were also adults who represented the Relational category. As we see from the previous episode, Child H was not accepted in the playing interactions, but this fact did not bother her a lot; due to her mastery level she could always find something to play with. Nevertheless, there were moments when it was clearly seen that she was eager to join the interactions, but she was not being allowed to do so and this made her very upset. The next episode describes such a situation and a moment when Child H was also finally included in playing interactions.

Observation episode 3

Child S and Child A sits near the puzzles and try to put it together. There is also Child F sitting next to them. He is allowed to watch, but his attempts to put a piece of a puzzle are not welcomed. Girls have some problems with putting it together; they use pieces from two different puzzles, so it makes it almost impossible to succeed. Nevertheless, they try to solve the problem, sitting there for more than 10 minutes. Child J sits next to them and plays parallel by herself.

Child C starts singing somewhere in the other part of the room. Child S screams his name and says something, at the same time showing with her hands that he should stop doing it (they speak different languages). Child C’s singing disturbs their concentration while puzzling.
Child H enters the unit. The teacher greets her; she goes directly to Child S and A to sit next to them. She wants to put a piece of a puzzle, but Child S holds her hands. Child S starts saying something to her (they speak different languages), first showing with her hands, that it is only she and Child A who are doing it. Child H does not understand. Then Child S starts pushing Child H out of their circle, saying and showing that Child H can take another puzzle, but not the one they already have. Child H resists leaving, her face is sad. The teachers notice what is going on and says to Child S not to push Child H. Child S speaks even higher trying to explain that it is only for her and Child A. The teacher explains that they can play together. A language assistant comes holding a baby in her hands and translates to Child S, also saying that Child S needs to say “I am sorry” to Child H. Child S has some objections, then accepts the fact that she can’t push Child H. She does not do anything for a while, just sitting next to Child H. Child C press the button of the toy and music starts playing. Child S looks at Child H, smiles and starts whispering something to Child H’s ear. Child H pretends she understands. Child S puts her hand on H’s leg to lean on her, continuing whispering her “secrets”. Then Child S takes H’s hand, smiles and they go to the other room, holding hands and smiling at each other. They play near the kitchen corner.

In this episode, the essential pattern was connected to the role of the adults. It is only after their participation the playing interactions emerged and continued its existence at the high enough levels. It is interesting to notice that in case with rejected follower player (Child J) this pattern linked to other participants, but in case with master rejected player (Child H) the role of adults was crucial. The similar crucial role of adults was noticed with another rejected follower player, Child B, but in his case the role of adults was important not in helping to, fixing of or stimulating of playing interactions among children; this time adults represented the very part of the system itself. It would not emerge or reproduce itself without their involvement. The next episode demonstrates one of common situations with playing interactions involving Child B.

**Observation episode 4**

Child D is very fond of a telephone (there are several out-of-order mobile phones to play with at the unit). He keeps it in his pocket and one of the first things he does in the morning is to search for the phone to take it.

Once Child B takes a phone from Child D and the latter runs after trying to get it back. Child B climbs the sofa, Child D starts fighting with him. When the language assistant notices it, he bring both boys into the other room where they find a soft football and start playing football. The boys are very competitive, but if Child D is competing during the game in attempt to possess the ball, Child B really tries to exclude Child D from the game so that it is only he who can play with an adult. A language assistant is not fully involved in the game; he has a pain in his leg. He watches the boys and stops them from fighting when they try to do it. When not fighting, boys are very involved in the game – they make it faster, run around, laugh or scream “goal”.

As soon as the assistant turns back to the boys, they stop playing. When he turns back and kicks the ball, the game starts over again. When the assistant leaves the room, Child B loses his interest in play and leaves too. Child D plays
with the ball a bit to practice some tricks, then take it and goes to another room. He has a ball in one hand and he listens to his telephone, which he holds in another hand. Child B also gets a phone; he puts it in his pocket and sits near the teacher for the rest of the time in this video episode.

The only dynamic that occurred in this system was in the majority of cases connected to whether adults were involved in play or not. Children preferred adults to be involved in playing interactions for various reasons. For example Child B simply could not play without an adult being around, while Child H preferred to play with adults to sharpen her mastery skills since other children did not have the level she wanted to practice at (see for example Observation episode 2).

Adults stopped many rough and tough playing interactions and in many cases it was an adult who tried to organise other type of activities instead. Thus, the adult who tried to make another system emerge eliminated the first one with rough and tough elements involved. The most common (and fastest) way to bring a new system to life was to find a ball and initiate a ball game with children (see Observation episode 4 as an example of many similar episodes). The ball game allowed to keep an energy at the similar to rough and tough play level, but since there were rules in a ball game, it was easier for an adult to control the situation, one can even say that the game itself was controlling the participants with the help of its rules.

As noticed in the previous chapter the system which involved adults never reached its highest intensity state because adults were never involved into play at the highest level since they also had other multiple duties and responsibilities during the play. Their work never stopped be it play or not. Following the safety rules, preventing conflicts between children, taking care of them etc. were burdens on the way to high intensity playing interactions for adults. Besides, adults had to control playing interactions in every case when the play got out of the frame for preschool settings, which had particular rules or norms to follow, starting from rules of how to play inside (for instanced running is not allowed for safety reasons) finishing by certain themes in play which were not welcomed by the staff. Episode 5 demonstrates such a topic, which adults started to ask questions to clarify the aim of a play.

Observation episode 5

It is a beginning of the day at the preschool unit. There are three groups of children, doing different things. A group seats near a dough table, another group is making puzzles with the help of language assistant 1, the third group is around a drawing table where the preschool teacher sits and draws together with children. Child C is the only child who does not belong to any of the groups. He is just going around, trying to use different things for his play. He holds some sort of weapon, made of Lego pieces in his hands. Other children change their positions, moving from one group to another. Child C takes a
cover from a round plastic box and starts using it as Frisbee, throwing it towards the blackboard direction, then throwing it towards the drawing table. The preschool teacher makes a remark, asking Child C to stop doing it.

The other language assistant appeared, first standing then sitting at the dough table. Child C continues throwing the Frisbee, occasionally shooting from his weapon at others. He passes by the puzzling circle; language assistant 1 invites him to join them. He sit next to them for few seconds, then stood up and continues with Frisbee. He goes to another room and occupies himself with building blocks for a while. Then he is back to the room where everyone is, imitating that he throws the Frisbee towards drawing table again. The preschool teacher asks him what he has in his hands, interested to know more about the weapon. The language assistant 2 translates a question to him. It is a pistol, he explains. The preschool teacher asks why a person needs a pistol. “I am police and need it to shoot people”, -- answers the boy. “Why police needs to kill people?”, -- asking the preschool teacher and continues to explain that police do not need to kill people. The language assistant 2 translates this and explains something to Child C. Then Child C says that police kills thieves. The preschool teacher explains that in Sweden police does not kill thieves. Child C adds that with Lego pistol one cannot kill people anyway.

The keen attention which the teacher and language assistants gave to this playing episode connects to their previous experience when according to them the previous group of boys that stayed at the preschool unit used to play war and torture for two weeks. The teacher was aware of the importance of play in the rehabilitation process of traumatised children; nevertheless the staff was worried about when and how they could help the children to get out of this particular system of playing interactions, which was emerging for a long period, reproducing itself because of traumas. In the observed group, the episode with a pistol was the only one in connection with weapons or destructive ideas connected to human victims.

Another characteristic with the Relational category addressed by children during interviews was parents. Children referred to parents who took higher position than teachers did in the ranking under the category. The role of the parents stayed unexplored since observations happened only at the preschool site and those parents who were present during introductory weeks had very small children (around 1 and 3 years old) who were not included in the study due to their low age.

To summarize the compilation of interviews and observations’ results we can say that observations of medium and high intensity state of playing interactions discovered following patterns within Relational category:

- the necessary involvement of friends in more stable versions of systems of playing interactions;
- the important role of inclusion made by peer players (with or without adults’ help) into the system of playing interactions;
- easier access to and participation in emerging systems of playing interactions of physical playing activities (for example sliding, rough and tough
play) for children who are not in a friendship relation. Longer pretend play sessions (for example tea drinking, kitchen corner play) usually involved those who were friends or on the way to become ones;

- variations of adult participations in playing interactions depending on the status of children: for a follower with rejected status an adult was the only possibility to get into play; for a master with rejected status as adult was an interesting player to master the skills;

- various degree of involvements of adults in playing interactions based on their role as guards in different systems – educational and playing ones. The latter never reached highest state of intensity due to a collapse with the former. Discussion chapter has more detailed description of this interesting finding.

Observing Emotional

Before going to analyse this category, it is worth to mention which definition is applied for it. This work uses a definition of emotion as “an interface between an organism and its environment, mediating constantly between changing events and the individual responses” (Scherer, 2015). Among several functions of emotions\(^{38}\) the exploration of which is beyond the scope of this work, we could only observe such functions of emotions as “the communication of reactions, states, and intentions to other people” (Ibid) and “the evaluation or appraisal of events that happen to us in terms of their relevance and consequences for our needs, plans, and values”. It was possible to observe the former (video observations) and explore the latter (interviews) with the methods applied in this study.

As the results of the interviews showed, it was only happiness which was listed under emotional category in connection to actual play. Observations however enriched this category with a more detailed description of this characteristic. The first noticeable thing in this category was surprise as an emotional state connected to the dynamics of playing interactions.

One can observe that there were two types of consequences which surprise had for play: negative and positive types. Each of these types affected playing interactions to a different extent and changed the dynamics of play as a system. Observation episode 6 describes a negative surprise occurred during the playing interactions:

\(^{38}\) For example the following functions could not being explored with the methods applied in the study: physiological and psychological preparation of actions in order to deal or adapt to the situation; representation and regulation of responses to a situation, including integration of received information into a central area of a brain (Scherer, 2015)
Observation episode 6

Child B climbs at the top of the slide, sits there, and then slides down, looking at me and smiling. He picks up a few pieces of puzzle and returns back to the top of the slide. Now he is not sliding himself, but making the pieces sliding. This is a big puzzle for small children, so each piece has a whole picture of an animal. He studies what picture each piece has to put them in a right position so they do not slide upside down. Small child 1 comes and starts doing the same, but just for enjoying how the pieces slide down, without paying attention to their positioning. She wants to take the last piece from Child B who resists giving it away. He continues to make the pieces slide, not letting Child A to slide down because he sits at the top and there is not enough space left.

Small child 1 starts stepping over Child B’s legs to be able to reach the slide part. Child A just reaches the sliding part from the side. Before start sliding both small child 1 and Child A need to sit and make a movement for the start. Child B start pushing them to slide. All of them discover that it makes sliding better and faster. Child B smiles and claps his hands after he pushes Child A down the slide. Child A climbs up and pushes Child B to get down. He resists for a while, then slides. Child A starts laughing. The rhythm gets faster, now all three start sliding, and then Child A leaves, the small child followed her.

Child B sits at the top alone. The girls are back; Child B explains that he would like to push them again, showing it with the hands (Child B and girls speak different languages). However, the girls want to slide in turns without being pushed. Child B then sits at one of the borders of the slide and now girls can slide without him sitting in the way. They start doing it faster; Small child 1 slides on her tummy. A language assistant comes and puts Small child 1 on the bottom, saying it is good to slide now, but Small child 1 refuses to slide. The language assistant takes the plastic sliding part away, saying good-bye. She shows with her hands for Child B and small child to get down. Child A stays and watches them. There is a silence because children do not understand whether the assistant is playing with them or not. Child A tries to laugh but there is no reaction from the assistant. Small child 2 comes and discovers that the sliding part is missing; now all four stand next to the slide in silence. Small child 1 tells the language assistant no, showing with her hands to put the part back, but the language assistant does not do it, asking if they would play nicely instead. Child A comes to the top of the slide without a sliding part and stood down to the ground right from the place where the ride is supposed to start. All other participants repeat after her. Child A tries to take the slide part from the language assistant. Finally, the assistant puts the slide part back and controls that children would start sliding from the top only, without climbing the slide from the sides, and then she leaves. Children start sliding in a silence first. Child A laughs, it makes the atmosphere more relaxed, the rhythm gets faster, children continue playing until small child 1 starts crying because despite of following the rules of how to slide correctly, she hits her finger anyway.

When the interactions emerge and develop, children participating in this episode, start being involved in play and reach high levels of intensity of interactions until the language assistant approaches, and takes away the sliding part. This comes as a shocking surprise to children. Especially small children do not understand why the fun play was stopped so unexpectedly; thus everyone keeps silence and looks lost. At some point Child A thinks it might be a joke.
and starts laughing, but this does not help the situation. For a while the play is dead, destroyed by an adult.

What caused the destruction of interactions are the safety regulations; the language assistant needs to explain and shows that everyone should slide in a special order to avoid crowding, pushing and falling down from the slide. Only when children finally get what is needed and how they should organise themselves, the language assistant puts the sliding part back. It took few seconds before the dynamics is back and the system of playing interactions emerges again. This time it went back to the high intensity state faster than at the beginning of its existence. Laughing, which did not work in a situation for checking whether it was play or not with an adult, serves as a pattern to bring the play back to life among children.

Another type of surprise effect, a positive one, can be observed in the next episode. If the previous description shows how the negative effect of surprise destroyed playing interactions, this episode shows how the positive effect of surprise helped the playing interactions emerge “out of nothing”.

Observation episode 7

It is a time after the gathering in the morning. A teacher and a language assistant are still sitting on the floor. There are also two mothers present; their children have introductory week. The teacher chats with mothers; children hang around. Three kids (Child A, S and F) sit around a dough table, but have not started any play yet. Child B sits on the reading sofa alone. Kids start using dough rolling pins; adults move around the room; there is a noise in the room. Child D comes to Language assistant 1 to get some fruit. Before giving it to Child D Language assistant 1 says how it is called in Swedish, the teacher repeats it for Child D.

A mother of a new boy saw someone she knows in the corridor. She stands and talks to that person near the entrance. Her kid is next to her. There is also a light switch on the wall next to them. The playing interactions develop at the dough table. Kids communicate and sculpt dough figures. The teacher asks Child D to sit down while eating his fruit.

A new child is tired to wait for his mother. He tries to pull her from the entrance, and then he goes around, returning to her. After that, he is next to the dough table just to look at the other kids. He attempts to pull his mother from a very long conversation again. Then he notices the switch on the wall and klicks on it. One can hear a sound of the click. The lights are off, it gets darker in the room, and everyone stops doing their things for a second. It is a millisecond’s pause. A new child switches on the lights and almost everyone starts laughing. Kids at the dough table look at each other and enjoy the moment, continuously laughing together. Then they come back to the dough play being even more enthusiastic.

Some moments after, Child D comes to the switch and stands there, first trying to press it with his head – so none can see it. It does not work, he put his hands on the switch; the teacher says not to do it and smiles. He stands back to the switch again and manages to click on it with his head. This time not everyone laughs, just kids around the dough table. Child D switches the light on and watching the ceiling. It looks like he explores how that works – whether all
lamps are on or just a few. He switches the lights off again, Child S starts laughing and whispering something to her friend Child A. They laugh again and get back to the dough play. This time the teacher says to Child D to stop playing with the lights. The mother of a new child joins the dough table with her kid, they stay there and play with a dough together with other kids for more than 30 minutes (the mother and kids around the table speak the same language, but with regional variations).

We can observe how switching on and off lights led children to be united by this action so that (especially the first time) everyone felt belonging to the same atmosphere of an unexpected funny surprise. The moment of switching starts to be expected with each new switch and fewer children react to this. Nevertheless, for children around the dough table, this surprise does not lose its actuality and they are happy every time it happens.

This episode as well as the previous one has many connections to laughing which serves as a pattern for interactions to emerge a few times in a row. Every time the surprising switch is supported by laughing and this brings the ongoing play with the dough to the higher level of intensity – when the surprise stops the play for a while, laughing brings the play back after the pause to an even higher level. This connection between a surprising event and a bodily reaction to it (in a form of laughing in this episode) could be noticed multiple times during the observations.

Further investigations of the bodily dimension of playing interactions discovered that sensory modalities (audition, touch) were also among patterns of play at its medium and high intensity levels. Alternatively, there was a pattern which brought play from its neutral state to higher levels.

The most illustrative examples of touch as a sensory pattern for play belong to interactions when the master player Child S participates. Observation episodes 1 and 3 describe those moments. In each of the episodes, it was Child S who pulled other children into playing interactions by taking their hands and by doing so involving them into play. In case with Child H (observation episode 3) the bodily dimension was the most important part for inclusion. Child S was acting to demonstrate the inclusion with the help of the bodily motions: she was leaning on Child H’s lap, whispering something to her, having her lips very near Child H’s ear, and then she took Child H’s hand to bring her to the playing corner. All these made Child H included into play directly from the state when she was excluded and pushed out of play towards the state of medium and high intensity of playing interactions. Rough and tough play among boys also starts or develops with sensory pattern and often the whole interaction is based on tactility, the play lasts until the adults are forced to stop it due to a close to fight state.

Interviews and some comments from them had the description of the emotional experience of players connected to the bodily dimension too. Tickling as a funny play with a parent, comments on the size of the body when sliding
down, pushes on the slides during playing – all these remind us that the body and physical touch have strong connections to playing interactions. It also indicates how children identify the emotions in connection to their experience: happiness or joy in most cases or irritation as in a case when someone pushed Child H on the slides in her previous preschool but that was not connected to play. Pushing others to speed their sliding is oppositely a very common pattern in playing interactions, which makes the dynamic of play faster, letting the system reach the high intensity state within a short period of time.

**Audition** could also be observed in many cases as a pattern for the emergence or development of playing interactions. Different types of sounds be it the sound of a switch (observation episode 7), or someone’s loud voice (for instance, Child S in observation episode 1) around children could change the dynamics of play. All these sounds could boost interactions or redirect attention from one type of play to another one. Descriptions of Observation episodes 1 and 2 have moments when the music is one of the contributors to how playing interactions emerge or develop. In episode 1, music from a piano toy which Child A starts playing attracts the attention of Child S. She does not see a toy or Child A first, but just hears the sounds and starts dancing, joined by Child A.

In episode 2, Child J changes her position and tries to join playing interactions of other children yet again when the music, playing from the other room stops. Another example from multiple cases is this:

**Observation episode 8**

Child D, constructing a tower from building blocks together with Child F. They spend quite a long time building the tower together, looking very concentrated and happy, especially Child F. He is in a good mood as usual, smiles at Child D a lot, sometimes hugs him and even kisses him (sensory modality touch), so happy he is to have Child D to play with. A small child brings a plastic toy and sits next to them, occupied with the toy. It makes a sound every time when a player presses the button and an animal pops up from a box. There are three boxes and one needs to close the boxes before pressing the button; thus there are two form of sounds: one from closing the box, and another one from pressing the button. Child D sits back to the small child and could only hear the sounds. He turns back as soon as he hears repeated clicks from the toy. First, he just looks at how a small child plays; when the child leaves, he starts exploring the toy himself. He plays with the toy for a while, then turns back to building blocks.

Having discovered that multiple observations show that sensory modalities is an important pattern of playing interactions, there is a chance to reconsider the category the Emotional. Right from the beginning, when this category appeared being based on the analysis of children’s interviews, it was surprising that there were no characteristics inside this category as we could find in every other categories of Relation, Activity and Location. Analysis of observations shed some light on why this happened.
We can assume that Emotional is not a category, but the very dynamic of play emergence. When there is play, happiness and joy are there too, being an element which is born out of the interconnectivity of all other categories, but not constituting a separate category itself, a category which is able to produce something else on the top, it is a “final destination” for playing interactions. This important observation makes it possible to slightly modify a place that the category of Emotional has within the system of play.

As observations of Emotional show, it is grounded in the bodily processes and corporeal existence has its huge role in how playing interactions appear and develop. Apart from the general notion that embodiment connects to how we as humans make sense, develop feelings or move based on our bodily processes, there are also individual features that affect the playing interactions for each and every child.

For instance, Child B, being overweight, cannot do some playing activities such as fast running due to the uncomfortable feelings for his body. Child S successfully uses many sensory acts which helps her physically involve other children in playing interactions. Child H reached quite high level of mastery in both physical and fantasy play; this makes her searching for a playing partner with higher playing skills than she has, etc. One can observe several variations of how everyone participates in playing interactions based on abilities and limits of their individual ways of bodily engagement with the world.

Based on analysis of observations of category Emotional, it becomes logical to give Emotional a specific place within a system of playing interactions that is being a core of a dynamic of play emergence. Instead of the category Emotional we can add a new one, what we can call Embodiment. It is within this category that all the described characteristics as surprise, laughing, touch, and audition can find their place and coexist freely; in turn, Emotional appears to be a pattern which emerges when all other categories and characteristics interact between each other.

Fig.29 (see p.161) demonstrates how the category of Embodiment can be placed within the system of playing interactions. It has the following characteristics when the system is able to reach its medium and high levels of intensity:

- surprise, depending on the type of consequences it brings – negative or positive ones – affects playing interactions so that it is able to pull the system into a neutral level of non-existence (negative consequences) or it is able to boost the system straight to the high level of intensity (positive consequences);
- laughing, being a bodily reaction in various playing or surprising situations (positive type), has the power to make the system emerge at the very beginning of play as well as after the forced stop of play;
- tactility (touch), playing a distinctive role especially in case of inclusion, it also allows to speed up the process of interactions in both physical or
pretend play; plus, it is an absolutely necessary element in rough and tough play, and, finally;

- sounds (audition), affecting the participants’ attention and being able to reorganise playing interactions, can be both supportive and destructive pattern at medium or high intensity of play.

**Observing Activity**

Observations of characteristics from the Activity category which children themselves talked about during the interviews add several details to these characteristics. For example, the very first and highly ranked by children characteristic of Unstructured play often connects to *curiosity*. In many observed episodes, the beginning of playing interactions links to the wish to explore something. How the cars can slide down from the heights (sub-episode 5 from Slide episode in Analysis chapter, p.89); what happens when switching the lights (Observation episode 7); how would adults react if to throw Frisbee when it is not allowed to do it (Observation episode 5) and many other examples of children’s curiosity happen during the observational period. Not all types of curiosity can drive playing interactions into high levels of intensity. It can be an opposite case when due to overlapping with some internal rules or norms, adults drag emerged play to the neutral state. Nevertheless, curiosity as a pattern could be found in several cases observed when the system of playing interactions was at a favourable state of medium or high intensity.

One can add that *curiosity* is also something which was difficult to observe during jigsaw puzzling. As mentioned earlier, this activity was excluded from coding during the analysis of observation data. It was hard to apply parameters for observing playing interactions when it comes to puzzling because goal setting has a different nature.

The possible explanation for this can be that despite of several similar playing patterns, which we can observe – sharing and accepting objects, being involved and concentrated, emerged emotional responses, etc. – the general difference of this activity from play is that there is a goal to achieve. It is more a task to complete than to enjoy the very process without a settled goal. In Observation episode 3 when Child S and A are concentrated on a puzzle, the sounds which usually is a pattern for playing interactions only disturb the activity. Child S asks Child C to stop signing since she needs to concentrate and search for solutions in their puzzling with Child A; they work for a clear result that is a completed puzzle.

In this case, Emotional appears not as a self-containing element of playing interactions, something which was born out of the play even if we can still observe emerging emotions during the activity. The main pattern in this activity is a goal to reach; it drives the activity further on and pulls the participants
back to the activity in case they are interrupted. The inclusion of Child H happened after the activity concerns playing interactions that take place after puzzling. Before that, Child H is not allowed to join the activity with puzzles because she can destroy the process of reaching their goal. Child S and A want to experience success from the accomplishment of this task themselves as a reward for their hard work. Thus, inclusion in playing interactions can depend on Emotional – would it be funny/joyful to play with this player? – while inclusion into activity with puzzles can depend on whether the new participant would contribute to reaching the goal (a completed puzzle) or this new participant might be a competitor in reaching such a goal. For this reason the adults were often wishful partners in the activity. They could help a lot in reaching the goal, without being competitive.

Another observation of Activity characteristics links to mastery. This pattern worked for any type of playing interactions (unstructured, physical, games with rules, artistic, etc.). In attempts to practice, develop or improve their mastery in playing interactions, participants were involved in playing interactions at the high intensity levels. Construction play with building blocks, serving the table, a fight of plastic dinosaurs, sliding down, playing with a ball, drawing, practicing of mastery in all activities was bringing concentration with it and longer playing sessions were observed. Those who reached good level of mastery, being part of a system, could bring the system to its high intensity state. This concerns not only those players who belonged to the group of master players, those who had higher playing skills already from the beginning (Children S, H, C, F). Children who tried to develop their mastery partly took part in playing activities for that reason and joined medium or high intensity play often. Mastery could also become a pattern in choosing playing partners. For example, in contrast to Child B who saw adults for his play as the only possible playing partners, Child H needed adults in her play since she wanted to practice, improve and demonstrate her mastery skills.

In connection to the use of toys as playing objects with their intended meaning, for instance the use of plastic teapot for the tea drinking play. For their unstructured play children used many other objects during observations. Sometimes these objects were the linking element in playing interactions even if they lost their primary roles or simply did not match the ongoing play. One example is a sheet of paper in the hands of Child S (observation episode 1). First she starts showing it to Child A at the drawing table, then she uses it for playing at the slides, trying to attract others to join her. When the playing interactions finally reach a certain level of intensity, she still has a paper in her hands as one of the pattern to keep play going, so if she drops it, the play would stop.

The other two episodes describe the use of digital objects in playing interactions in the preschool section. Digital play or gaming was an important activity in children’s experiences of play, but there was no chance to observe it at the preschool section since the majority of this type of play happened at
home. Thus, it was interesting to observe at least how children used digital objects such as mobile telephones. There were several out of order telephones for play at the site: some were just plastic copies, another ones were real (broken or very old) phones which children could use in their play.

**Observation episode 9**

Child D is in this room, having his mobile phone in his pocket. He makes some calls from time to time, looking very serious. Child C, his best playing partner, is not present today, so Child D cannot find activities to play for a long time. He joins Child F to play Lego. Several times he approaches Child S and A who play a mother and a child. He tries to say something to them, but no one wants to understand him; S and A are not in a mood to include him in their play. Child S starts screaming a language assistant’s name every time Child D approaches them and shows with her hands to take Child D away from them. A language assistant asks Child D to go with him. Before that, the language assistant was occupied with a baby who recently started the preschool section, so he tries to make a playing company with the baby and Child D.

First, Child D plays ball with the baby. He rolls the ball towards him and waits until the baby rolls it back. Then Child D starts playing a ball with a language assistant. He gets very involved and tries to score against the adult. The tempo of a ball play gets higher, Child D runs faster, makes some sounds, laughs. Child B also joins the play, since the language assistant is present and Child B can try to redirect the play into the way that it is only he and the language assistant involved in it.

The language assistant plays with the two, passing them the ball and kicking it when the ball comes back to him. This playing activity becomes quite stable and reaches medium and high levels of intensity. All of a sudden, Child D’s phone falls down on the floor from his pocket. Being involved in a play, Child D does not notice it first, but then he sees a phone lying on the floor. He checks his pocket and realises that it is his phone. The play stops immediately. He pick up the phone, puts it back into his pocket and comes back to the play. There are few seconds of a low intensity level; then the play is back to its higher levels of intensity.

This episode is similar to the one when Child S has a sheet of paper with her all the time during sliding. Neither a paper, nor a phone has direct connections to the activities, but it seems like these objects have a possibility to hold play in its emerged form. As soon as the objects are lost or dropped, the play can stop, so these objects appear to be important patterns for playing interactions to continue. In this episode, the phone as a digital object to play is used first with its intended meaning (calling); then it becomes one of the connecting elements or characteristics for playing interactions.

The second example, describing the use of digital objects in play, is about Child H and her play with a mobile. One day closer to the end of the observation period, there was only Child H present at the preschool, because it was an autumn school break and many parents stayed home with their kids. She started a conversation with me, showing a phone she picked up. First, she explained that she would call her mom, and then she showed how one makes a
call from the mobile. After that, she turned the phone and discovered that a mobile company’s logo on the backside can serve as a mirror. Look, she said to me, there is a mirror! --, and started to pretend that she used lipstick in front of this mirror. She looked at the tiny apple image, reflecting her face and asked me to show her my teeth. Now we will check your teeth, it would not hurt you, it is just a check, -- she said and started to use the phone’s reflecting part as a dentist tool. Everything is ok, do not forget to brush your teeth, - said Child H and switched her attention to a language assistant who was sitting at the table and filling in some paper forms. In this episode, the use of a digital object has a clear connection to pretend play. After the intended function of the phone was used in play (calling the mother), it turns into a dentist tool and starts being used just as a playing object with no connection to its original digital function.

The next pattern which was discovered during the observation of medium and high intensity of playing interactions is expectations of players involved in a system. In its stable version, playing interactions have participants who expect other players to do certain activities and they all accept how they would have these activities done. These are not exactly the rules of how to play when it comes to unstructured play, but a mutual agreement to meet expectations of each other. This could be observed in multiple episodes when Child S and A played a mother and a child. For example, the next episode happened right after Observation episode 9:

**Observation episode 10**

It is not the first day Child S and A continue to play as mother and a child. For a few days in a row, they repeat the same script that is Child A getting into a plastic box from the toys, sitting there and pretending she is a baby while Child S is a mother, taking care of her. Child A makes very naturalistic sounds of a weeping baby; the box is quite small for Child A, so her legs and arms are outside the box. Child S feeds her, gives her medical treatment, covers her with a blanket, etc. Child F is usually around, coming into play and leaving it. Child D tried to approach them earlier to say something. He repeated one word, but no one understood him. After several attempts to say something to the girls he succeeded in communicating to them what he wanted to say. It happened after the moment when the language assistant had said “baby” in Swedish, pointing at the baby. It became obvious that what Child D tried to say earlier was very close to that word. When he had heard the word, he run to the girls, pointing at the baby, repeating “baby, baby”. Then he pointed at Child A, moving his hands to show that Child A is not a baby. She is too big for the box and there is a real baby around. The girls did not like it and screamed at him to go away.

Thus, for the girls who agreed on how they would play and who would be whom, there are certain expectations from each other. Child A gets into the box and sits there every time they play, while Child S makes some actions as a mother; they do not switch roles and expect to repeat the same script every
time they start playing. In contrast, Child D’s expectations about the play are different; he does not understand why the real baby is not involved. He believes that she would match the role in this play better than Child A does.

The inclusion of Child J in Observation episode 2 also demonstrates how Child J started to do what was expected in tea-drinking play. She did not try to switch her role; she just matched Children S and A’s expectations for the one who is allowed to join their play.

Various play expectations exist between children and adults too. Multiple examples of how adults see playing interactions and their development differ from children’s vision of play and expectations within and out of it. Observation episode 6 or episode 23 from interviews both have clear indication of how adults’ expectations for play do not fit children’s vision: the language assistant removing the sliding part until the children understood the idea of safety sliding or commenting the playing activity with the neighbours’ door to be not a nice thing to do. All these situations indicate that emergence and development of the system of playing interactions have tight connections to expectations of participants (children) or guardians (adults), involved in the system.

To summarise observations of the Activity category at the favourable state of playing intensity with data form the interviews, we can say that:

- curiosity, serving as a driver for playing interactions to emerge, supports the system in its state of medium and high intensity, especially if consequences of play based on curiosity do not overlap with accepted norms or rules;
- mastery as one of the patterns of playing interactions, affecting dynamics of play, contributes both to the emergence and stability of the system, allowing some children to develop their mastery or to practice it for improving their mastery skills;
- expectations within play, helping playing interactions to last longer or on the opposite, disturbing interactions when expectations are not met for any of the participants; children’s expectations within play can differ from adults’ expectations of how playing interactions should develop and continue.

Observing Locational

The Category Locational has three characteristics, namely Outside, Preschool, Home, which were discovered after the analysis of children’s interviews, but the observations could only follow one of them, in connection to Preschool. There were not enough occasions to observe outside interactions, since the preschool section did not have enough space outside its building and for that reason, there were almost no outside play sessions. During the observation period, the outside play happened only once and last just few minutes. This became possible partly because on that day there were three extra adults,
young people who had their practice at the preschool. The Characteristic Home was not available for observations too, since the study had approval from the Ethics board for taking place in this particular preschool section only.

When playing interactions were reach their medium and high intensity states, there were two patterns which appeared during the analysis of observations: continuity and prediction.

As one can assume, continuity has tight connections to the Locational category. All the playing corners with multiple available toys, plus the very place, preschool, invite children to start and continue their playing interactions. For instance, slides attracted children the most out of all unstructured activities; the dough table was also popular among young players as locations for their interactions. Everyone knew which activities happened in preschool and where they happened. Children also knew additional meaning of those places. As Child H mentioned (Episode 37, session n.9), the sofa from the reading corner can be used as a place for children who need to calm down after some incidents as fighting or breaking the rules, in this case the sofa from the reading corner turns into a “prison”.

However, continuity within the play not only indicates that particular places link to certain playing activities which usually continue at the same locations, but also continuity is present in the process of how the system of playing interactions keeps emerging in each new situation. Playing a mother and a child, tea drinking, playing with dough and many other activities reproduce themselves easier each time they continue. Continuity becomes possible due to the accepted roles and already known scripts of play. Several playing episodes with Child S and A can illustrate this: there were several days when S and A played a mother and a child, so that Child A was getting into the plastic box and spending there a lot of time, pretending to be a baby. Child S was taking care, feeding and proving some medical treatment to Child A. The continuity of play was one of the patterns for their interactions. Tea-drinking play had a similar notion of continuity in it with more players involved in this activity; players joined tea drinking, reaching a high intensity level of interactions faster with every new session of play.

The described above pattern of continuity links to prediction as another observed element within children’s play. Activities with a predictable script at certain locations lasted longer for a bigger group of participants. It appeared to be that a tea drinking script was rather universal for the majority of children and apart from the expectations of players about this type of playing, prediction allowed those expectations to work at their best with the use of a kitchen corner toys’ utilities. Child J predicted some actions during tea drinking; this helped her meet the expectations of Child A and S and being finally included in their play. Child S and A’s predicted that Child D with his expectations of how a real baby should look like would disturb their play, so they did not allow him to join the play in order to keep it going without destructions. They used
the same playing attributes and the same location every time they played. Thus, observations of Locational category showed that:

- **continuity**, helping play emerge and last longer for each new playing session, also makes the next pattern, prediction, easier for participants especially in cases when the script of the play is repeated and it is familiar to the majority of the participants;
- **prediction**, allowing participants of play to know what is expected from them in different types of activities, makes those activities more accessible for bigger group of children at higher intensity levels of play.

Fig.29 (below) shows a short summary of all findings after the compilation of the results obtained after analysis of both interviews with children and observations of their playing activities.

*Figure 29. Compilation of the results from interviews and observations at the preschool section group*
CHAPTER 8
Discussion

In the final chapter, there are discussions of the results of the study in connection to the research questions raised at the beginning of the work on this project. The chapter discusses limitations and possible implications of the results of the study about playing interactions of newcomer children.

Many studies exploring various phenomena within the educational field often have a conclusion about the results showing that the studied phenomenon is a complex one. In this study, we started with an idea of the complexity of play and tried to examine what are the theoretical and methodological possibilities to explore the complexity. Newcomer children as main participants just sharpened the notion of how complex the project’s implementation could be. It did become a complex, but very exciting challenge! What we had in mind while choosing a new theoretical approach for the field of Early Childhood Education and Care studies was that one could not find easy solutions for studying complexity – it would be very hard to use a binoculars for studying the Universe; in order to do it, one needs very sophisticated, technological tools. For this research project, such a tool was variations of system theory and dynamics system theory in particular. The concepts coming from this paradigmatic view (Koopmans, M. and Stamovlasis, D., 2016) helped to underline how complex the playing interactions were, and to explore the dynamics and development of these interactions in details. Highly dynamic, very flexible, having multiple variations among each other, all these describe not only the playing interactions, but also their participants who are coming through a huge transition in their lives. As mentioned at the beginning, this project was a theoretically driven one; however, the theory and empirical parts complement each other, having strong links between each other.

To see playing interactions as a dynamic system with newcomer children being participants of play required careful thinking through how playing interactions could be observed and analyzed within such a theoretical framing. One cannot say, however, that it was a complete domination of theory in the project, since there was enough space available for unexpected or surprising findings.
Theoretical and methodological implications of the
dynamic systems approach to play among newcomer
children

The main answer to the first research question what are theoretical and meth-
odological implications of the dynamic systems approach to play among new-
comer children is that theoretical and methodological implications of the dy-
namic system approach to play among newcomer children demonstrated that
playing activities of newcomers are embodied, flexible and self-organizing
phenomena, functioning in response to multiple contexts, which can include
both individual, social and material elements.

Such a result demonstrates how much the study phenomenon of playing
interactions links to the view of play not being only affected by individuals or
by social norms, but the view of play being a complex system of interrelated
patterns with reference to multiple contexts, including the material world.
Seen from this perspective, play emerges and develops out of chaos and may
come back to it after some time (VanderVen, 2015). The notion of emergency
refers to “the arising of unexpected novel patterns, structures, dynamics, and
entities” (Goldshtein, 2016, 39) in playing interactions. The dynamics of these
interactions is based on connections between the present state of play of chil-
dren and their previous playing interactions through time. As newcomers ar-
rive from various societies and cultures, this approach makes some extra sense
in application to this particular group of young players since it allows re-
searchers to see possible or in some cases necessary transformations of their
play.

The dynamic systems approach permitted hearing, observing and studying
newcomer children and their experiences of being active players. This ap-
proach also allowed us to explore the phenomenon without limitations, usually
connected to language issues or cultural norms among newcomers. This is not
to say that the socio-cultural part of play is ignored or denied; it is indeed a
very important component of the phenomena. However, the view of play as a
system which is emerging, dynamic and self-organizing opened up a different
different perspective on studying play. It also helped to study newcomer children, re-
search with whom often requires harder ethical considerations and for that
reason might have many limitations (Kirova and Emme, 2007).

The theoretical concepts, applied in the project, to a very big extent affected
the research design of the empirical study. A lot of work on the project such
as an operationalization of a theoretical framework, a decision on what is ac-
tually a system in this case, which parameters should be used for observations,
at which level this observations should happen, etc. took place long before the
green light was given by the Ethics Board. One can say that it is because of a
theoretical framework which forces a researcher to think through multiple and
fine-grained details of the what, why and how phenomena that will be studied,
the application to obtain the right to conduct such a study was approved without major objections.

From the beginning, the unit of analysis (Matuzov, 2007) moved from newcomers towards their playing interactions. Strictly following the Luhmannian perspective, one would be required to make participants of playing interactions an environment of the system, not a part of it. The dynamic systems’ approach is less thrilling in this regard, because the newcomer players are still the part of the system; it is just that the focus is moved towards dynamics, change and development of the phenomena under study, not towards individuals as such; this is what Keidman (2010) calls the switch of point of observation. Nonetheless analyzing the dynamic system of playing interactions from the Luhmannian perspective alone with an application of his ideas of first- and second-order observations let the results underline many distinctive features of the system. As we can see, the results show that exclusion of individuals from the unit of analysis did not make the participants invisible, it was the opposite in fact; such an approach to playing interactions even allowed us to visualize playing experiences of newcomer players.

It was not an easy task, however, to find methodological solutions to apply a rich theoretical vision to a dynamic system of play among newcomers. The methods and methodological tools used in this research project included the following:

- an explicit tool for analyzing the newcomer children’s interviews was developed in order to get closer to children’s experiences and to decrease possible adults’/researcher’s/cultural influences on children. The development of the tool for analysis was inspired and became possible via the application of concepts of communication, rooted in dynamic system’s thinking and its idea of emergency (Fogel, 1993). Thus, special attention was paid to the emerging play topics among children. This helped first, to discover categories and its characteristics of play among newcomers, and second, to have those categories as starting points in a process of the compilation of results;

- a specific software GridWare (Lamney et al. 2004), developed on the principles and concepts of dynamic systems ideas, was used for exploring the changes and development of playing interactions among newcomer children. Together with State Space Grids method (Hollenstein, 2007, 2013) this really helped to visualize and show various dynamics of systems of playing interactions. Besides, it was used to find out possible patterns of play that enlarged data from interviews. In order to do it, the playing episodes which had medium and high intensity were used for analysis. The chosen parameters for observations of play intensity were adapted from previous research (Broadhead, 2010, Safarov, 2009). The use of parameters previously discovered or applied in research within Early Childhood Education and Care on the one hand supported connections to the field, and on the other hand allowed us to get new results.
To study the complexity of the phenomenon of playing interactions, the project zoomed in and then zoomed out (Bloom, 2016, 29) on playing activities of newcomer children in order to obtain more knowledge on how their playing interactions can emerge and change. Keeping in mind that “the whole is always bigger than the sum of its parts” (Koopmans, M. & Stamovlasis, D., 2016, 1) we cannot make reductions to just several parts of the system and claim that they are the main parts of it. We can only study those parts in more detail (zoom in) and then come back to the “whole” (zoom out), seeing how everything is interrelated, how it emerges and changes within the system of playing interactions.

The main achievement of the project in terms of theoretical and methodological implications is that it managed to be conceptually and methodologically specific about capturing the dynamical process of playing interactions among newcomer children, so that this process was not only hypothesized, but deeply explored in empirical part. Data, obtained from the latter gave answers to the other two research questions, raised at the beginning of the work.

Newcomer children experiences of playing interactions during their transition into Swedish early childhood education

Roger and Evans (2008) suggest one of the alternative approaches to play is a view from the “inside”, from children’s perspective, so that the young players’ vision and understandings could inform the pedagogy in a relational way and the educationalists could listen to children about what is play when you are a child. To be able to hear children’s voices and in this case voices of newcomer children in particular about their play, the project started with interviewing children and then, using their experiences coming out of the interviews, continued with observations of how they played. The applied tool for analysing the interviews aimed at decreasing adults’ influence. With this particular group of participants, it was important to do it, for the hierarchical structure and the role of children and their play in the societies they were coming from might differ from the westernized model of a normative child, the one whose job was to play and learn in the institutionalised space (James et al., 1998).

Previous research showed that in societies outside of the industrialised North, the role and place of play varies and parents do not often support the idea that play could be useful for children (Göncü et al., 2000). Plus, the vertical power relations in many societies, when children are considered to be at the bottom of the hierarchical structure, often influence children in a way that they believe that adults’ are the holders of some universal truth just on the basis of their position and age, so children must obey social norms and listen to adults. Such a disposition of power relations can remind one of a positivistic
picture in modern times when the search for universal truth was highly appreciated in society, but not so much critique was given to such a paradigmatic view. On the opposite, in the postmodern period, the idea of the universal truth started to be heavily criticised (Lenz Taguchi et al., 2010; Dahlberg et al., 200; James et al. 1997; Prout 2005). One can say that the transition of newcomers happens not only from the South to the North (see the Introduction), but from one adult-child relational paradigm to another. Considering these circumstances, what can we know about play of young children experiencing a huge transition in their life?

They communicated that play was \textit{REAL} the abbreviation which occurred after analysis of their experiences expressed verbally and non-verbally. The abbreviation stands for \textit{Relational, Emotional, Activity and Locational} – categories that appeared to be the most important dimensions which were connected to play.

Friends being the most wishful partners in play which should preferably happen outside with a ball or other playing objects, all these interrelated entities making children very happy: this could sound as a very simplified summary of the experiences of players; nevertheless it describes the brightest and very important moments in their lives from their perspective. This is how children see their play. The more detailed analysis of the play experiences reveals more nuances, among which the following were noticed:

- \textit{relational}: parents who usually have no time to play, but they are listed among wishful play partners; an absence of friends that makes children feel lonely in play; an emphasis on the gender of the playing partner when girls talk about their play;
- \textit{emotional}: the only positive emotional states listed in connection to play are happiness and joy;
- \textit{activity}: unstructured and physical playing activities remaining at top positions among this group of participants; digital play gaining its position among most popular activities too; a strong ability of children to distinguish game from play; artistic play having possible obstacles from religious norms; jigsaw puzzles not being considered or mentioned as play by children;
- \textit{locational}: the notion of home being a place without connection to something stagnant, which could be connected to unsafety feelings in contrast to preschool where it is safe to play.

The results, obtained from the interviews with children are interesting not only due to the limited amount of studies with young newcomer children; thus the results contribute to the under-researched area within the field of early childhood education and care. What is also important in this case is that the results represent young newcomers’ voices which can modify few discourses in the field. The results do not support vulnerable discourse, described by Pinson and Arnot (2007), as one of the problematic ways to approach newcomers; nor do
they support the idea of innocent childhood which “circulate[s] in Western though as a rosy-cheeked innocent who should be protected of adults anxieties and uncertainties” (Brooker, 2011, 152). This is also to alter the notion of a normative child, a highly criticized universal construct rooted in developmental studies, being so popular and dominating early childhood education in the last century (James et al., 1998, Dahlberg et al., 2007). The participants of the project do not fit a stigmatized image of them or their play, but instead the study of their play managed to demonstrate how rich and multilayered the process of play is, and how active and experienced they are as players.

Framed by a system way of thinking, the interview results appear from application of first-order observation, when the system of playing interactions distinguishes between itself and its environment – what belong to it and what does not (Luhmann, 2002a). Once again, from a Luhmannian perspective, the participants would belong to the environment of the system, not be part of it; they could only be attributed to the system. However, their playing minds and bodies would make the system adjust to its environment: for example, active master players make the system of playing interactions emerge faster and probably last longer, while follower players would be attributed to a less flexible system with a shorter life span to emerge.

When applying first-order observation to dynamic systems which do have participants as their part, one of the most important things is still to figure out where is the border between play and non-play seen as such a dynamic system. Then, one can proceed towards the system’s second-order observations when it becomes clearer how the system selects its elements, what is included or excluded from it. In this regard, newcomer children communicated several inclusive categories as valuable for their play from their own perspective. These categories helped to better understand the borders between when the activity was play and when it was not, such as for instance, playing with a dough was marked as play, but doing jigsaw puzzle was not. In addition, the categories revealed multiple elements, included in their playing interactions. Nevertheless, as Lenz Taguchi (2010, 120, emphasis added) notices:

“[t]he risk of romanticising children and making visible their own voices and strategies of thinking and doing without simultaneously getting into in-depth processes of knowledge production and meaning-making […] needs to be continuously contested”

Lenz Taguchi (2010) writes with a focus at reconceptualised practices which might not be taken seriously if just connected to children’s views, without considering epistemological and ontological principles standing behind such practices. This idea of understanding and deep analysis of children’s voices through a theoretical prism in connection and further interrelation to practice is very appealing to this project. How to not only make children heard, but also what to do with the knowledge based on their experiences further on?
In this project, newcomer children’s experiences and voices served as a basis for continuation of re-conceptualising play within a system theory framework. We can say that a view of a bigger picture of play being a dynamic system was made by and became possible with a great help of the children.

What keeps play alive? Playing interactions patterns which maintain play in each new situation for newcomer children

It is a compilation of the results, obtained from interviews and observations, which brought the answer to the third research questions on playing interactions patterns, which were present and pushed the play to keep on going in each new playing episode. The system’s second-order observation continued during the compilation process when the categories of play communicated by newcomer children got additional characteristics. The category Relational was enriched with patterns linked to a variety of roles of adults in the process of playing interactions and to inclusion by peers as important elements for play. The category Activity included such elements as curiosity, mastery and expectations of children within play. The category Locational started to have essential connections to continuity and prediction, made by children in play. Thus, each of these categories got more exhaustive patterns, which the system of playing interactions selects to include or exclude from itself.

Observations gave an interesting result within the category Emotional. Analysis that is more detailed showed that curiosity, laughing, touch and audition tightly linked to emotional dimension could actually be embraced by the term embodiment, which could better capture the essence of this category. That is how category Emotional became Embodiment based on the results from observations; however, the latter did not simply replace the former; instead it turned out that Emotional got a very special place within a dynamic system of playing interactions. We need to come back to Niklas Luhmann’s idea of an autopoietic social system in order to understand what Emotional became within the dynamic system of playing interactions.

An autopoietic system is made out the elements, which it produces, and in this process of production and reproduction, all the elements create a network. In case of playing interactions of newcomer children, the network of the elements or patterns, belonging to play were discovered during both interviews and observation analysis. Fig. 29 represents a summary of what these patterns are. We need not to forget that all the patterns in a network of playing interactions are interrelated with each other and no pattern is more important that another one. It is only in the dynamic process of being interrelated that a network of patterns produce and reproduce themselves. All patterns from Fig.29 are not static entities; one can think about animation of Fig.28 when during
the playing episode, any element of REAL can start forming new connections and networks with other elements.

As the results demonstrated, there are multiple variations of how playing interactions emerged between newcomer children and how different the dynamics of the interactions were (Chapter 6). Based on the compilation results, we can say that all those multiple networks of patterns and dynamics are autopoietic with the help of the Emotional category. This is what organizes play in an autopoietic manner. Let us look at Fig.29 (p.161) once again. All four categories Relational, Embodiment, Activity and Locational with several characteristics within each of the category make the children’s play system emerge, every time unpredictably organizing themselves in various patterns as in a kaleidoscope (Kim and Sankey, 2010, 86). However, what is always there is Emotional, a pattern which is produced by a play system and which is also a building element in the system. In every new playing situation, REAL patterns are presented to various extents; they emerge and form a dynamic network, but what always keeps them united and what is born out of their interrelations is Emotional. That is what keeps play alive.

Such results of the project are not absolutely new. Vygodsky (1978, 99) talks about “a source of pleasure” being a mimetic pattern of children’s play. Piaget (1962, 92) sees play as focused on pleasure. One can find theoretical discussions on “emotional destinations” of play in Henricks (2016, 319), for example, who tries to identify the reasons and rationalization behind the enjoyment of play. Russ and Kaugars (2001), being interested in connecting emotions and creative problem-solving in children’s play, concluded that “play paradigm can be used to study affective processes [emotions] in children” (Ibid, 211). Russ earlier developed a tool (the Affect in Play Scale, APS) “to measure the expression of emotion in play” (Ibid, 212). There is also “an alternative critique of a simple association of play with pleasure“, mentioned in Brooker (2011, 156), such an association might soften or hide other important associations of play, such as the ones connecting to power and domination, for example.

However, what brings novelty for this project is that it not only theorised play through a novel dynamic systems perspective for the field of early childhood education and demonstrated with the results how theory worked for the empirical part and vice versa. What is also novel is that the process of dynamic emergence of play among newcomers was theoretically and empirically studied, and analysed via the system perspective embracing children’s experiences within early childhood education and care settings39. A Luhmannian concepts

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39 An “onion diagram” based on the Bronfenbrenner’s ecological system theory can apply here, in this diagram each system or layer is included into and itself includes or encircles other systems.
of an autopoietic system and of first and second order observations had a crucial role in the project too as methodologically *children’s play was observing and reproducing itself while we were observing children’s play.*

As discussed in Chapter 3, according to Luhmann (Qvortrup, 2005), social systems do have a special communication code within themselves. The results show that a communication code within playing interactions system was not connected to language. A play system used emotions, not language for its communication code. There are multiple symbols of play, which do not need to be understood via language. Several episodes with ball play can be a good argument for this. Not only a ball, but also tea drinking utilities or dough did not require language as a means for play to help it emerge. The symbols have universal meaning across various cultures and everyone knows how to play with this type of playing object. Interactive playing episodes with those symbolic objects attracted children despite their different language backgrounds. Having emotions for a communication code in the playing system could also be a reason why the study ran smoothly and the language diversity was rarely an obstacle for the research with newcomer children on their playing interactions.

It is interesting to come back to the study of Arnott (2016) whose intention was to explore preschool children’s social experiences during digital play. A system approach (Bronfenbrenner’s ecological system theory) served as a fruitful framework to discover different factors related to the social context, contributing to children’s social experiences while playing. Thus, a rich body of results about factors (for details, see Illustration II, p.++) were identified and became a basis for introducing an informative techno-ecological framework of children’s social experiences during digital play in which children were active agents and co-constructors of interactions among themselves and pedagogues. Some of the results of her study could be particular stimulating for the discussion of this project, considering the fact that Arnott (Ibid) applied one of the variations of system theories, and also used the same parameters (Broadhead, 2010) to begin her analysis of children’s interactions during play. She notes that interactions were “unpredictable and no discernible patterns could be established“(Ibid, 279) and the variability of children’s interactions and behaviour moved focus of the study towards searching for the wider ecological context.

Arnott notes (Ibid, 277) that all three Bronfenbrenner’s system components *persons* (children and practitioners), *process* (children’s digital play interactions) and *context* (both physical, social and cultural) were applied for the analysis in her study, but not the fourth component *time*. This might be a valid reason why patterns could not be established in children’s playing interactions considering the very unpredictable character of interactions. It is exactly *time*, or to be precise, the tracking of the dynamics of playing interactions *through time* which revealed patterns in the case of our project. While Arnott’s analysis (2016) specified the importance of children’s agency in Digital System Play,
the dynamic system approach of this project allowed us to relocated the agency towards interactions themselves or even considered participants as an environment for the system in some parts of the analysis (Niklas Luhmann’s switch of focus). Such a methodological approach led to a possibility to capture several patterns in an unpredictable phenomenon of children’s play.

Limitations of the study

The general limitations of this research project link to the issues of complexity, involved in both the phenomenon of playing interactions and the theoretical framework, chosen to explore such a complexity. Playing interactions could be studied from multiple angles and perspectives; it is quite hard to have a general definition of the phenomenon and many scientific fields have their own views and research interests in play. Even within an educational field, research on play provides an arena for various approaches and discussions which can produce tensions about how and in connection to what it must be studied. For people who do not have vital interest in ontological and epistemological questions, this might come as a problem to explore all the theoretical details of the project which are important for the empirical part. On the other hand, the complexity of system theory provides a fruitful platform to explore the phenomenon of play, but from the other, its specific language might be difficult for those who comes across this theoretical perspective for the first time.

The participation of a particular group of newcomer children in this project might raise some questions too. There were several general reasons for carrying out this project with newcomers. Considering a significant transition they and their play are undergoing, it was important to hear their experiences and see the dynamics of their playing interactions for further analysis and implementation of the results into practice and future research within the early childhood education field. The group of participants was very diverse and included children with different cultural and language background. Nevertheless, the group had a limited number of participants and this fact might affect the results; thus observations of bigger or more homogenised groups could enlarge the results obtained only within this particular group. The limited number of participants connects to the complicated procedures for obtaining ethical approval for research with ethnic minority groups. Since approval was obtained for a certain preschool unit, one could not select participants from other preschools or increase their number; for this reason, the research results should be interpreted within this specific context.

Another possible limitation concerns the parameters used for observations of playing interactions of newcomer children. The parameters were selected and adapted from the previous research on play and were implemented for the aims and purposes of this project. One needs to emphasise that the results of
the observations connect to the selected parameters to a big extent, meaning that the alteration of the parameters might bring additional results even if the same theoretical framework would be used for further studies.

Concluding remarks and implications

The results of the project demonstrated the diversity (multiple variations of playing interactions among the participants), complexity (when the whole is not the sum of its parts) and non-linearity (not a straight way of change or development) of play among newcomer children. It also showed a possible way to research the dynamics of such a complex phenomenon. Newcomer children communicated what was important for their playing interactions “from inside” a play, while observations added a few vital patterns to it. Thus, the dynamic system of playing interactions among newcomers got its shape from relational, embodiment, activities and locational categories (REAL) including multiple patterns within and between each of the categories. The Emotional category appeared to be a pattern which both triggers the dynamics and change of play as well as remains the main outcome of it.

An essential point concerned an understanding how all of these play patterns come together “not as a puzzle that, when completed creates a clear picture, but as an ecosystem that is multidimensional, dynamic and is best understood by a systems approach all of its dynamics elements and interactions” (Fleener, 2016, 12). To explore the phenomenon of play, the complex theoretical framework was applied, exposing the possibilities of a new way of thinking about it.

As noticed in the Introduction, the knowledge obtained from this project first of all contributes to a vertical discourse (Beach, D. and Bagley, C., 2012) within higher professional education with its systematically formed knowledge structure. The results can be used by preschool teachers and student teachers, helping them to “describe, model and theorize from empirical situation” (Beach and Bagley, 2012, 293). It could become one of the ways to reflect about the pedagogy of play based on the ideas about play being a dynamic system.

The central idea behind the pedagogy of play from the system framework can be connected to “system references” (Keiding, 2010) or the way to switch observations. First, abstracting play in order to see what affects it afterword (observation of play within the system of play) and apply what is suitable for a particular context of a preschool practice (observation of play within the system of preschool education). As described in Chapter 3 these systems (play and education) do have various communicative codes and their contingency formulas differ (educating vs joy), but this does not mean that play vs pedagogy must be seen as a dichotomy from the system theory perspective. In contrary, the complex, unpredictable and non-linear character of play as a system
is able to accommodate both children and pedagogues from the various contexts they are situated in.

Knowing about the landscape of play’s dynamics with hills and basins of attractors, pedagogues might become a guide who helps children not to get lost in that landscape or being trapped in a basin, formed by negative tendencies or development. All these can affect children’s well-being in general and their play in particular, be it exclusion (players with rejected status), religious norms, forbidding certain playing activities (art play, for instance) or little knowledge about the appropriate expression of emotions (aggressive way to express joy or pleasure). Another guided path is, on the contrary, to help stay in those basins of positive development of playing interactions longer or showing a shorter way to those basins. It is important to notice, however, that pedagogues are not the only figures who are able to alter the system of play alone. As results show it is only within the interrelations of many factors or patterns, both internal – individual players’ specific features, adults’ intentions to support or in opposite, not to participate; and external – various contexts, material objects etc.; one can affect the dynamics of the whole system of playing interactions. Seeing through the complexity and non-linearity of play as something that the system of preschool can organise and use for building lasting playing relations among children can be a fruitful way to support young players. In this case, considering a self-organisation feature of the dynamic system, in Jörg’s terms (2016, 77), the young players will “create/acquire relations in a short run; in the long run, these relations [will] create” players.

Having presented possible implications for the field of early childhood education and care, the final step in the project links to ideas for future research. Bloom (2016, 34) and Volk created a model of research which has three aspects – depth, abstraction and extend or abduction:

“Depth” involves examining the intricacies of the relations, patterns and processes within any system or sets of systems. “Abstraction” involves creating explanatory models or frameworks, or “maps” that describe the territory, and examinations of one’s own or others’ epistemologies. “Extend” or “abduction” refers to the processes of using and testing the concepts from “depth” and “abstraction” in other contexts.

The project examined the dynamic system of playing interactions of newcomer children in depth, trying to explain an epistemological framework for such a system. However, there are still some issues left that can be further explored in “extend” or “abstraction” part of research. Thus, future research should focus on:

- the development of pedagogy of dynamic system play for effective practices in complex cultural, language and ethnic diversity groups of children;
the investigation of embodied play cognition EPC, that is how human cognition is guarded by the kind of body we possess. EPC will explore the interrelations of all mental and bodily systems, including feelings and emotions. This can contribute to one of the problematic areas of research on play such as human ontogenesis (van Oers 2012, 188-189).
Sammanfattning på svenska

Detta forskningsprojekt syftar till att introducera dynamisk systemteori (DS) i utbildningsforskning - ett nytt perspektiv som tillämpas på nyanlända barns lekinteraktioner för att rekonceptualisera lek inom Early Childhood Education and Care (ECEC). Valet att fokusera på nykomlingars lek är inte empiriskt drivet utan teoretiskt, även om både teori och empir samexisterar och befriar varandra i projektet.

Att studera lekinteraktioner, särskilt bland gruppen nyanlända barn, är centralt för ECEC, eftersom lek för den första har stor potential att stödja och utveckla nykomlingarnas välbefinnande, och för det andra för att lek underlättar för övergången till och integreringen i det svenska utbildningssystemet för många av dessa barn. I detta forskningsprojekt ses nyanlända barn inte som en stigmatiserad grupp och övergången och integreringen till svenskt förskolsystem inte heller som ett problem. Då inträde till ett specifikt skolsystem alltid innebör en mycket dynamisk period i ett barns liv, studeras här särskilt nyanlända barn då denna grupp skärper blicken för själva processen som övergången mellan nationer, kulturer, institutioner, språk och identiteter innebör. Därmed representerar nyanlända barn och deras lekaktiviteter en signifikant grupp att utforska, vilket i sin tur bidrar till att göra studien av dessa barns lek relevant.

Syfte och forskningsfrågor

Syftet med studien är å ena sidan att bidra till kunskap om hur lek uppstår bland nyanlända barn och hur man kan förstå dess dynamik och å andra sida att utforska den dynamiska systemteorins möjligheter inom ramen för en empirisk undersökning inom ECEC-området. Ur det dynamiska systemperspektivet undersöker forskningsprojektet lekinteraktioner mellan nyanlända barn i en övergångsperiod enligt följande: efter att ha kommit till Sverige med specifika uppfattningar om vad lek är, utsätts dessa barn för nya kontextuella leksammanhang. Under övergångsperioden uppstår, beroende på barnen tidigare erfarenheter, nya lekinteraktioner, på både på realtids- och på longitudtidsskalor. Realtidsskalan är av särskilt intresse för en empirisk tillämpning av en dynamisk systemteoriansats. Analysenheten är förloppet av lekinteraktioner mellan nyanlända barn under en period av övergång till det svenska utbildningssystemet. Den empiriska studien undersöker också på djupet barns upplevelser av lekaktiviteter vid tiden för deras integration i förskolans sociala liv. Forskningsfrågorna är därför följande:

Vilka är de teoretiska och metodologiska konsekvenserna av en dynamisk systemteoretisk ansats på lek bland nyanlända barn?

Hur upplever nyanlända barn lekinteraktioner under en övergångsperiod till svensk förskoleverksamhet?

Vilka lekmönster upprätthåller de olika lekinteraktionerna, i varje ny leksituation, för nyanlända barn under övergångsperioden?
Teori


Etik
Metod och analys

För att kunna utforska upplevelser av lek hos nyanlända barn används grupp- eller individuella intervjuer för att få en vid ram med allmänna frågor som hjälper barnen att dela med sig av sina reflektioner. Intervjodata bistår med att utforska barnens perspektiv på lek och hur de upplever det. Lekobservationerna som dokumenterade hur de faktiskt lekte, baseras på allmän systemteori. Observatören tillhör alltid ett speciellt system (och är ett system i sig själv) genom att vara med och påverka leken som är ett eget system, eftersom oavsett vilka förändringar som sker i omvärlden och lekmiljön, adapterar systemet mot dessa förändringar. Till exempel, inom ett utbildningssystem, där kopplingen mellan vuxen och barn alltid spelar en stor roll, skulle den binära relationen mellan den som observerar och den som är observerad fungera som en ömsesidig relation och varje förändring i den ena skulle påverka den andra.

Baserad på den icke-linjära och komplexa bilden av kommunikation inom kopplingen vuxen och barn, samt idén att plötsliga ändringar i kommunikation leder till att utveckla teman, och i försöket att minimera de vuxnas påverkan på barnens upplevelse, tillämpas ett analytiskt verktyg för intervjudata som har tagit fram för detta projekt. Space State Grid (SSG)-metoden baseras på en grafisk ansats och används i analysen av observationsdata och som fungerar med data och kvantifierar den.

Resultat

Svaret på forskningsfråga 1 demonstrerar de teoretiska och metodologiska implicatiorerna av en dynamisk systemteoretisk ansats på lek hos nyanlända barn. Den visar att lekaktiviteter är embodied, alltså förkroppsligad, och är flexibla, självorganiserande fenomen som fungerar i olika kontext som kan innehålla både individuella, sociala och materiella element. Ett sådant resultat pekar mot att lekinteraktioner kan kopplas till idén att lek inte bara påverkas av individer eller sociala normer, utan också på lekandet som ett komplext system av sammankopplade mönster som hänvisar till olika kontexter, inklusive den materiella världen.

Huvudpoängen med projektet, givet dess teoretiska och metodologiska implicatiorner, är att det har fokuserat på den dynamiska processen hos nyanlända barns lekinteraktioner.

Vad gäller forskningsfråga 2 visar den att nyanlända barn kommunikerar att lekandet är REAL, en förkortning som kom fram efter analys av deras upplevelser, såväl verbal som icke-verbalt uttryckta. Förkortningen står för Relationella-, Emotionella-, Aktivitets- och Lokaliseringstekategorier, vilka verkar vara de viktigaste dimensioner som är kopplade till lek. En mer detaljerad analys av lekupplevelser visar dessutom olika nyanser, bland andra:

Relationellt: Föräldrar har i vanliga fall inte tid för att leka, men finns med på listan över dem som barn önskar att leka med; saknaden efter vänner som gör att barn känner sig ensamma när de leker; flickor som beskriver sitt lekande och lyfter betydelsen av könsaspekten hos den man leker med;
Emotionell: De enda positiva känslorna i samband med lek är glädje och lycka;

Aktivitet: Ostrukturerad och fysisk lek hamnar högst upp bland studiens deltagare; digitalt lekande hamnar också högt upp; att barnen urskiljer lek från spel; artistiska lek kan bli problematiska utifrån religiösa normer; pussel räknas inte som lek av barnen;

Lokalisering: Idén att hemmet är en plats som uppfattas som stillastående vilken skulle kunna kopplas till känslan av ottrygghet, i motsats till förskolan där det känns tryggt att leka.

I anslutning till forskningsfråga 3 sammanställs resultaten från intervjuerna och observationerna, vilket ger svaret på frågan om mönster av lekinteraktioner som för leken framåt under varje nytt lekmoment. Kategorin Relationell berikas med olika mönster som har samband med de vuxnas roller i lekinteraktioner och med inkluderingen av andra barn som viktiga lekelement. Kategorin Aktivitet innehåller beståndsdelar som nyfikenhet, skicklighet och barnens förväntningar under lekandet. Kategorin Lokalisering visar viktiga koppningar med kontinuitet och förväntningar som barn uttrycker under lekandet. Följaktligen kan varje kategori innehålla andra genomgripande mönster som lekinteraktionen som system väljer att inkludera eller excludera från sig själv.

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Utbildningsutskottets betänkande 2012/13:UbU12


Annex

Annex A Ethical Board Approval nr. 2015/154-31Ö

Ärende besträkt eller annan åtgärd

2015/154-31Ö

Punkt 3 fortsatt handläggning
Föredragande: Gerhard Norilland
Stökanne: 
Umeå Universitet
Beteckning företrädare: Gunnar Schedin, prefekt
Projekt: 
Nyanländas barns lekinteraktioner i samband med 
övergångsprocessen till den svenska förskoleverksamheten.
Forsknings omgör projeket: 
Iris Rädder
Pedagogiskt arbete, Högskolan Dalarna

Ärendet är tidigare behandlat vid sammanträde 2015-06-09, punkt 
2. Efter diskussion beslutade nämnden att begära in komplettering 
från ansvarig forskare och att när komplettering inkommit, ta upp 
ärendet till förenad bedömning vid ett kommande sammanträde.

Kompletteringen har nu inkommit.

Beslut

Nämnden godkänner den forskning som avses med ansökan.
Punkten förklaras omedelbart justerad vid sammanträdet.

Vid protokollet
Ingrid Engman Sköld

Justeras
Karin Granholm

Styrktes
Ingrid Engman Sköld

Kopia till 
behörig företrädare
Annex B Semi-structured interview guide

This interview guide indicates just a framework for the interview, leaving some space open for the discussions (in connection to play) which are most interesting for the participants.

All prospective participants for whom the consent is obtained will be asked about their own will to take part in the interview. The voluntary character of participation will be explained to children alone with the opportunity to leave when they want to leave. The interview will take place after I present myself, explain my project and children get familiar with my presence. An available toy, which is familiar to the children, will be used as a mediator between the adults and children. The interview is conducted with the help of language assistants who work at the unit.

*Here is a very curious bear/giraffe/etc. It likes to know about children and their play. Can it ask some questions? If you do not want to talk or to answer its questions, it is absolutely ok.*

Below are the questions for those children who expressed their interest in conversation about play.

- What is your day like in a pre-school? What happens when you come here?
- What do you like to do in the pre-school? (Depending on how children define playing activities (PA) among others listed, that name given by children will be further used instead of PA (for example play, game, running, etc.) to ask them more details about PA.
- How many playing activities do you know?
- How do you like to play (at home, at pre-school)?
- What is your favorite playing activity?
- Could you draw your favorite playing activity? Could you draw your favorite toy?

*After the drawing session, based on the pictures children had drawn.*

- Can you tell me what is on the picture? What is the name of it?
- How do you play this playing activity/how do you play with this toy?
- Do you like jumping/running/playing football/cooking/reading books?
- Did I miss something? Can you help me to name more playing activities?
- Do you like playing alone or with someone?
- Whom do you like to play with (for ex. a friend, a group of friends, a parent, etc.)?

*Look how this bear/giraffe/etc. can play here (the toy expresses joyful play – with laugh and excitement). How do you think, is it happy?*

- Do you smile/laugh when you play? Are you sad when you play?
- Do you play differently/similar every time? If I want to play with you, tell me what should I do?
Annex C Letter to parents/guardians
Translated into the mother tongue of the parents/guardians

Dear parents/guardians

I am a doctoral student at Umeå University and intend to conduct a study on the preschool that your child’s/children stay on. The study aims to create a new understanding of the importance of play in the newly arrived child's transition process to the Swedish preschool. I will study how children play and things that may be relevant to how children play and I therefore wish permission that your child may be included in the study.

The playing situations will be filmed. Children will be also asked to draw a picture of their favorite plays and games. I will also conduct the interviews with children, so they could tell me what are their favorite games and plays (for example: football, jumping, drawing pictures, etc.). These interviews will be recorded by audio recording. Video and sound recordings will be encoded; all names will be changed and treated as confidential.

The participation in this project is voluntary, and you as guardians have the rights to cancel your child or children’s participation at any time. If you do not want your child to participate, I will not include your child in this research project.

In case if you give permission that you child will participate in this research project, please sign the enclosed form for (each of) your child and submit the form to the staff, no later than _________.

If you have any questions, please feel free to contact me at nle@du.se or at 076XXXXXXX.

Sincerely
Nadia (Nadezda) Lebedeva
Permission to participate in research project on play in kindergarten

Child’s name ______________________

I give permission for my child/children to participate in interviews based on children’s drawings

I give permission for my child to be audio recorded during interviews

I give permission for my child to be video recorded during playing time

Date                                       ___________________________
Parent’s/guardian’s signature_________________________
Annex D Letter to teachers and language assistants

Hej

My name is Nadia Lebedeva, I work as a doctoral student at Umeå University. My research project concerns children’s playing interactions in early childhood education settings. I am particularly interested in children’s perspectives and their experiences of play in different cultural settings.

I would like to get an opportunity to observe different playing situations for five weeks during the “free play” time in this kindergarten. The playing situations will be filmed. Children will be also asked to draw a picture of their favorite plays and games. I will also conduct the semi-structural interviews with children, so they can share their own experience of playing. These interviews will be recorded by audio recording. Video and sound recordings will be encoded with fictional names of all children and adults who participated. All Data will be treated as confidential in accordance with Personal Data Act (PuL, 1998:204). The pre-school’s and municipality’s names will stay anonymized.

The participation in this project is optional; the information letter together with the consent form will be given to the parents or guardians of the children and to the teachers and language assistants. The participation can be canceled by participants at any time. I will not include a child/children in this research project without their parents or their own permission as well as no teachers or language assistants will be included in the research.

Please sign the enclosed form to indicate your consent to this research project.

If you have any questions, please feel free to contact me at nle@du.se or at 076XXXXXXX

Sincerely

Nadia Lebedeva
Consent to participate in research on children’s playing interactions

Name ______________________

I give my consent to participate in interviews based on children’s drawings
I give my consent to be audio recorded

I give my consent to be video recorded

Date                                       __________________________
Signature                                  __________________________
Annex E Letter to the municipality schools’ head and a head of preschool section

Hej

My name is Nadia Lebedeva, I work as a doctoral student at Dalarna University. My research project concerns children’s playing interactions in early childhood education settings. I am particularly interested in children’s perspectives and their experiences of play in different cultural settings.

I would like to get an opportunity to observe different playing situations for five weeks during the “free play” time in (name of the pre-school unit). The playing situations will be filmed. Children will be also asked to draw a picture of their favorite plays and games. I will also conduct the semi-structural interviews with children, so they can share their own experience of playing. These interviews will be recorded by audio recording. Video and sound recordings will be encoded with fictional names of all children and adults who participated. All Data will be treated as confidential in accordance with Personal Data Act (PuL, 1998:204). The pre-school’s and municipality’s names will stay anonymized.

The participation in this project is optional; the information letter together with the consent form will be given to the parents or guardians of the children and to the teachers and language assistants. The participation can be canceled by participants at any time. I will not include a child/children in this research project without their parents or their own permission as well as no teachers or language assistants will be included in the research.

Please sign below to indicate your consent to this research project taking place in (name of the unit).

If you have any questions, please feel free to contact me at nle@du.se or at 076XXXXXXXX

Sincerely

Nadia Lebedeva
I give my consent to this research project that will take place in (name of the unit)

Name ______________

Signature ____________

Date ____________