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Identifying and characterizing risky play

Identifying and characterizing risky play in the age one-to-three years.

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Introduction.

While young children's play has often been researched, little is known about young children's risky play. It is well established that children from four years and up take risks in play and that this type of play can support both children's well-being and development (Aldis, 1975; Boyer, 2006; J. Byrnes, Miller, & Reynolds, 1999; Christensen & Mikkelsen, 2008; Kennair, 2011; Pellegrini & Smith, 1998; Readdick & Park, 1998; Sandseter, 2010c; Stephenson, 2003). However, there is little knowledge of the age children when start engaging in this type of play and, there are no known studies investigating children's risky play under three years (Pramling Samuelsson, Bjørnstad, & Bae, 2012, p. 21). This paper investigates the occurrence and characteristics of risky play over the age range one-to-three years and will discuss whether the existing definitions of risky play can be attributed to children in this age group, or if alternative definitions and adaptations are necessary.

Theoretical framework

Play. Apart from being mentioned briefly by Stephenson (2003), there is no literature directly linked to risky play in the under-three age group. One option is therefore to apply the extensive body of research on play and physical development. Related to early childhood education, some prominent theories are those of Frobel, Pestalozzi, Vygotsky and Piaget (Johnson, Sevimli-Celik, & Al-Mansour, 2012). Basic common traits of these theories are that play is voluntary, inner motivated and "purposeless", meaning that the activity has intrinsic value and is in itself more important than its ends. Fröbel (2005) is one of the first to attribute value to children's free play (*Freiarbeit*), and the great potential for learning in play. Vygotsky's concept of *zone of proximal development* (1987) is based on the teacher's ability to optimally facilitate learning to the pupil's individual needs. Contemporary applications of this theory resonate with risky play in that children explore their surroundings and, by constantly giving themselves increased challenges, can be said to constantly create their own zone of proximal development. (Johnson et al., 2012). Sutton-Smith (2009) advocates the intrinsic value of play and sees the fun and exhilaration as strong motivational factors conducive to the repetitiveness of some forms of play.

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This does not mean that all free play generates learning or that all challenges should be interpreted as risky play. Rather, these conceptions can be used as points of departure for theoretical considerations and interpretations of empirical data. Also the criterion of plays' purposelessness can be seen as a paradox, as play is often considered to be functional (Martin & Caro, 1985), so the present paper will be based on the theoretical assumption that risky play has intrinsic value and at the same time is functional; supporting both the immediate well-being and future developmental functions of the child.

Pramling's (2012) review of contemporary Nordic research in Early Childhood shows that there are few studies on children's play, and even fewer including one-year-olds. However, Løkken (2000c) offers a comprehensive description of social play styles among one- and two-year-olds, described as *toddling*. Social toddling includes ways of running, jumping, trampling, twisting, bouncing, romping and shouting, falling and laughing ostentatiously, often around large elements (e.g., a mattress). The play is communal and recurrent. The work of Engdahl (2007) also offers insight into a group of one-year-olds' play, showing common traits and how they actively choose playmates. This study finds that children of this age play together most of the time and that play is mostly characterized by sequential- or repetitive play. Also it shows that children have longer uninterrupted play sequences where they maintain focus on the same activity over time. Both of these studies apply the phenomenological theories of Merleau-Ponty (2012) to their observations. Merleau-Ponty discusses how children's bodily perception are developed through exploration.

Risky play. Theoretical applications of the terms risk, risk-taking and risky play exist in a variety of disciplines with most research stemming from economy and psychology, and with significant contributions from sociology and early childhood care and development. The present paper will be based on two assumptions: (1) that the individual child experience risk in the observed activities and (2) that the activities can be identified as play.

Historically, risky behavior or risk-taking is regarded mainly in a negative sense and something that should be avoided (Boyer, 2006; Lyng, 1990). Risk-taking from psychological perspectives has focused largely on maladaptive social functions recently named "the prevailing developmental psychopathology model" (Ellis et al., 2012, p. 598). Research on risk-taking has also had a tendency to focus on adults' extreme activities such as sky-diving or motorsports (Breivik, 2001; Lyng, 1990), which makes adaptations inappropriate for children. This approach, however, presumes the behavior as *risk-seeking* (Apter, 1992), i.e. a voluntary action where the action itself is more important than the possible outcome, which resembles

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one prominent feature of human play. This understanding of the behavior suggests that “humans seem to need excitement some of the time – some more often than others – and that we must recognize this if we are to gain full and accurate picture of human nature” (Apter, 1992, p. 7). Adams (2001) highlights risk-assessments’ ultimate goal of *reducing risk*, and suggests avoiding this discourse by introducing the distinction objective vs subjective risk. Objective risk involves pre-defined, observable or measurable risk factors in a situation, while subjective risk involves how individuals perceive these factors differently in different situations. Kennair and Sandseter (2011) draw upon non-associative theory to explain why children develop fears of certain stimuli (e.g., heights and strangers) for protection. The involvement in risky play secures both age relevant safety, coping strategies and is suggested to have an anti-phobic effect documented in longitudinal studies (Poulton & Menzies, 2002). Similarly, Ellis (2012) suggests an alternative to the psychopathology model, explaining adolescents risk-taking behavior from an evolutionary perspective, where the ability to understand and assess the costs and benefits of risks have been crucial for survival, reproductions and eventually development of the humans species. Boyer’s (2006) review of psychological research on risk-taking in childhood and adolescence has a similar conclusion: “[...] although by definition potentially harmful, prototypical risk-taking behaviors might be engaged because they are also associated with some probability of desirable results. Future studies could dramatically benefit from a conceptualization that characterizes the potential social, biological, emotional, and cognitive consequences of risks, as potential *outcome values* to decision-making and risk-taking behaviors (Boyer, 2006, p.335).

Studies leading to the present understanding of children’s risky *play* highlight outdoor physical play, with examples such as sliding, swinging, climbing, bike riding, balancing over drops, jumping down, chasing and play-fighting, shooting with bows and arrows, rolling on the ground and whittling with a stick (Hughes, 2013; Kaarby, 2005; Sandseter, 2010c; S. J. Smith, 1998; Stephenson, 2003). *Fun and thrill* are also described as prominent features that make it easy to identify with overt sounds and body language such as screams, laughs and big movements (Mårtensson, 2004; Readdick & Park, 1998; Sandseter, 2007). Rough-and-tumble play is also included as risky play by several researchers as it could represent potential (unintentional) harm to the participants (Blurton-Jones, 1976; Humphreys & Smith, 1984; P. K. Smith, 2005). Bringing these perspectives together, Sandseter (2010c) offers this definition: “[risky play] involves thrilling and exciting forms of physical play that involve uncertainty and a risk of physical injury” (2010c, p. 22) and identifies six categories of risky

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play. 1) play with great heights—danger of injury from falling, 2) play with high speed—uncontrolled speed and pace that can lead to collision with something (or someone), 3) play with dangerous tools—that can lead to injuries, 4) play near dangerous elements—where you can fall into or from something, 5) rough-and-tumble play—where the children can harm each other, and 6) play where the children can “disappear”/get lost.

Hence, risky play is identified by physically overt, mostly outdoor activities and the risk in risky play is related to physical injury. As this understanding is based on studies of older children, it might be useful to tone down this preconception in the present study. Thus interpretations of observations in the present paper will be based on a more basic understanding of risk-taking, such as “[...] risk taking involves the implementation of options that could lead to negative consequences.” (J. P. Byrnes, Miller, & Schafer, 1999, p. 367) – in the context of play.

Method

The exploratory nature of the study involved several ways of collecting data, i.e. direct observations with field notes, mapping, and video recordings. The small sample was chosen to describe and map behavior in detail, to determine whether children in this age group can be said to engage in risky play, an approach which is recommended for exploring new phenomenon (Johannessen, Tufte, & Christoffersen, 2010). The main methodological approach is based on ethnography, where the researcher takes part in the children’s daily life in order to observe behavior and interaction. This role as participant observer is emphasized as relevant to gain insight into children’s lives (Corsaro, 2003; Gulløv & Højlund, 2003; James & Prout, 1997; Lange & Mierendorff, 2009). As the aim of the ethnographic methods is to provide rich or thick descriptions of a cultural phenomenon (Geertz, 1994), it was important to observe as many situations as possible, also situations that normally would occur outside of the staff’s view. To obtain this, Corsaro suggests for the researcher to initially observe the present childcare staff and then behave differently (2003, p.8). On visits and during piloting, the staff was observed to be generally playful and involved with the children and the role of “detached observer” was chosen (Gulløv & Højlund, 2003, p. 40). Carrying a notebook and a video camera strengthened the position as both different and detached. On day 3 of the data collection, Daniel (3) indicated the achievement of this role: “[...] *points at me and shouts: Look! He’s not an adult! He does not have children! He IS a child! He does not have us!*” (Kg 3, Day 3, Video 0016, 02:05.)

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Participants

The participants consist of 53 children in the age one-to-three years from five Norwegian day care centers (kindergartens): KG1 (Ordinary kindergarten), KG2 (Ordinary kindergarten), KG3 (Forest kindergarten), KG4 (Forest kindergarten), KG5 (Ordinary kindergarten, with focus on outdoor activity; only one-year olds in the group). The groups were observed between August and February the following year for a total of 12 days. After the first seven days of data-collection, the observations indicated deviations from the predominant understanding of risky play, considering the one-year-olds. Therefore, to strengthen the detailed descriptions, it was decided to observe only one-year-olds for parts of the remaining data-collection. Groups consisting of all ages (one-to-three-year-olds) were observed for a total of 8 days, while only one-year-olds were observed for 4 days.

The kindergartens were selected based on two criteria. The first was their scores on the Infant Toddler Environmental Rating Scale (ITERS-R) (Harms, Cryer, & Clifford, 2003) and the second criteria was being a forest kindergarten. These criteria were chosen for further investigations of general quality and affordances for risky play, but do not have specific relevance for the present papers' research questions. Additionally, the forest kindergarten was chosen to increase the probability of getting relevant observations. Previous research indicate that risky play will occur more often outdoors (Aarts, Wendel-Vos, van Oers, van de Goor, & Schuit, 2010; Cosco, Moore, & Islam, 2010; Sando & Lysklett, 2012; Storli & Hagen, 2010).

The participant sample consists of 28 girls and 25 boys, with 26 one-year-olds, 20 two-year-olds and 7 three-year-olds. The low number of three-year-olds is due to the practice in Norwegian day care, where children are moved to the older age group within the semester they turn three. This was unproblematic due to the projects focus on the youngest children.

Observations

At the beginning, each group was followed throughout the day, for about 7 hours. Due to few children in each group and/or physical limitations, e.g. fences or closed doors, it was possible to observe all the children most of the time, in four of the five groups. In one of the forest kindergartens however, the children were allowed to move freely around a much bigger area, with less visibility due to trees and bushes. These observations still gives a general picture of the activities for one day.

In all five kindergartens, the everyday life of the children consisted of several routines, such as diaper change, meals and naps. Even if it can be assumed that there is less chance of risky

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play in certain situations, the children were observed in all activities and transitions between activities. However, to note and describe all activities would be infeasible and unnecessary. In accordance with the aims of the present paper, the major issue was to determine whether an observed behaviour could be characterized as risky play. Therefore, any situation that was perceived dangerous, either by the child, staff or the observer was mapped and described in order to answer two basic questions: Is it risky (for the child)? And: Is it play? To later interpret whether the child or the staff experienced risk/fear, the descriptions elaborate on actions, facial expressions, body language, voice/sounds and verbal expressions. In addition, the following information was collected for each observation.

- *Who* – with codes for individuals, gender and age). In examples in this paper, children are presented with a fictitious name and age in brackets, e.g. Lene (1).
- *What* – with codes for categories of risky play based on existing categories and categories suggested in the present paper.
- *Staffs reactions/involvement* – with codes for individual staff and description of reactions (not yet coded). In examples in this paper, staff are presented with a fictitious name and staff level in brackets. Teacher = (T), Assistant = (A), e.g. Espen (T).
- *Location* (with codes for Inside/outside)
- *Sociability* (with codes for Alone/Together)
- *Duration* (with codes for Long/short)

Mappings

The purpose of the mapping is to provide additional information to the qualitative descriptions, specifically to establish to what extent risky play occurred and to collect comparable, contextual data. Cosco, Moore and Islam (2010) suggest behavior mapping for getting an overview of complex situations. Several mapping tools were reviewed for the purpose of this study, but all instruments were missing terminology related to risky play. Alternatively, the problem could be solved by defining risky play as *vigorous physical play*, a category that was included in several instruments. However, this would lead to the problem presented earlier in this paper; that the age group in focus could display other types of risky play, and relevant observations would be missed. Therefore, a mapping tool was developed specifically for the present study. The categories of the mapping reflects the codes described earlier, and could be represented quantitatively for descriptive statistics.

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The mapping was piloted in two kindergartens to investigate the relevance of the codes and the usefulness for observations and later analysis. Small adjustments have been made to the mapping format throughout, but without altering the basic content and the early and later mappings are comparable. One category of play, *playing with impact*, was added after the first two days of observation. Since the mapping has not been subjected to inter-reliability testing, the mapping will not be emphasized as evidence as such, but as support of the general patterns and descriptions.

Video

Video-recordings were added towards the end of the observation period to increase the level of detail in the descriptions for one-year-olds (Knoblauch, Schnettler, Raab, & Soeffner, 2012). Recordings were done for one full day in two kindergartens, KG3 and KG5. KG5 was recruited late in the data collection for this specific purpose. KG5 keeps the one-year-olds in one group, enabling observations of the targeted age group. The 8 children in KG5 are between 1,1 and 1,11 years at the time of observations and two of the children were not walking by the time of observation. The videos were coded similarly to the field notes.

Ethical considerations

The study is based on the assumption that research is necessary for obtaining knowledge for the best of children. Intruding in children's life is therefore sometimes necessary, but while doing so, every measure should be made to secure the rights and integrity of the subjects of the study. The study adheres to all ethical standards and privacy policies approved by the Norwegian Social Science Data Service and The Norwegian Data Protection Authority, which ensures confidentiality and anonymity of the participants. The approval presupposes informed consent from all parents of children involved, which was obtained. Still, the children themselves should have a say, and considering the young age of the participants, the possible experience of intrusiveness in their daily life were of high priority. The staff would inform the children of a visit by a stranger and the purpose of this visit, to the best of the children's capabilities. Most importantly, the children could give "ongoing consent" (Flewitt*, 2005, p.556), meaning that if a child would give sign of discomfort or unease caused by the presence of the observer, the observations would end. In addition, the study's focus is risky play and, by definition, there would be observations of situations where children might be physically injured. In such cases, continuous judgement of the situation was necessary to decide whether to intervene or not, and avoiding injury would be given priority over compromising the role as detached observer.

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Analysis

From the first days of observations, children were observed playing in ways that could be identified within the existing definition of risky play, but there were also observations suggesting that children played similar play without experiencing any risk, and sometimes vice versa; children experienced risk without showing any thrill or there was no risk of injury. To determine whether the play could be characterized as risky, two criteria were applied in the analysis. *Environmental* characteristics of the situation, i.e., height, speed, unstable surfaces, etc. Staff's reactions were also included as environmental characteristics. *Individual* characteristics of the child the situation, i.e., how the child appeared and/or expressed its experience in the situation through body language, facial expressions, sounds or words (Sandseter, 2009a, p.10). This was combined with previous observations of the child, e.g. how it had reacted in previous similar situations.

Mapping. To establish the extent of risky play, occurrences or *instances* of risky play were counted. One “play” or game count as one instance. This means that one instance can include many children and/or repeated risk-taking. For example, if a group of children were chasing each other, and at the same time climbing and play fighting with sticks, this would count as one instance. Repetitive play such as sliding or swinging would also count as one instance. All instances were coded as described earlier with *Who, What, Staffs reactions/involvement, Location, Sociability, Duration*, for statistical analysis.

The date of birth of each child was collected, but in the analysis, categories of age are one-, two- and three years. Individual differences in age-related development are more nuanced than this, but one main finding seems to be related to a child's ability to walk. Since this ability normally is developed in the second year and stabilizes in the third year (Goodway, Ozun, & Gallahue, 2012), this categorization was considered sufficiently detailed. Individual children were described and mapped in detail, but not coded for statistical purposes.

Based on this, the present paper's basic variable for analysis is *Instances of risky play*. This gives a sample where n represents the total number of instances of risky play observed in 12 days. As mentioned, on four of the days, only one-year-olds risky play was observed and mapped, even if there were two- and three-year-olds present. If summed up together, this would give one-year-olds an unnatural high number of instances compared with their older peers. Therefore, these four days cannot be compared statistically with the observations of the full groups, and are considered to make up a separate sample. This gives two samples of

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Instances of risky play: Sample 1, including children one-to-three years (N=198), Sample 2, with one-year-olds only (N=46).

Emerging findings were discussed regularly with colleagues, practitioners and researchers, to establish face validity through outsiders' perspectives (Rickinson, Sebba, & Edwards, 2011).

Findings and discussion

The present study's aim is to identify and characterize risky play in the targeted age group. Regarding appearance and content of play, there are variations when it comes to how each individual child express itself and engage in risky play. However, based on the described criteria, risky play was observed in the age group one-to-three years in all five kindergartens on all days of observation. The mapping and descriptive similarities found across different contexts, suggest consistent patterns. These patterns are suggested here as characteristics of risky play in the age group one-to-three years.

Common characteristics for risky play in the age group one-to-three years – Individuals, age and gender

According to the predominant understanding, playing with risk involves a thrill or an exciting sensation, described by the children themselves as “it tickles in the tummy” (Sandseter, 2010a, p.76). It can also be identified through overt expressions of excitement, fear or exhilaration (Aldis, 1975; Sandseter, 2009c; Stephenson, 2003). These characteristics make risky play relatively easy to identify, also in the present study:

Example 1: Sondre (2) and Daniel (3) are climbing on the big snowballs, bouldering (the balls are about their size and there is a whole circle/structure of them). They climb up, try to jump from one to another or slide or jump off. Daniel jumps off several times and slides down the “high wall”. He shouts: I drove fast! I drove the fastest! Wasn't that fun?! Sondre climbs to the top of the wall, but says with a tiny voice that he doesn't dare. He watches Daniel while he slides down again, and Daniel looks back up on him and assures him: I didn't break my legs! Daniel goes on to reassure Sondre that he dares: “It is not big!” he encourages. Sondre laboriously gets in position and mumbles to himself (I do it, I dare this) and off he goes. At the bottom he shouts: I dared, I dared! I dared slide down there! He walks back into the circle of boulders while he repeats to Daniel: I dared! (Video0016, KG3, Day 3)

The interpretation of this episode is based on a combination of environmental and individual criteria and knowledge about the individual child. In this example, the environmental

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characteristics are the height of the boulders and the steep incline of the slide. The individual characteristics are the expressed emotions, excitement and anxiety, and body language, first by Daniel, then Sondre. Daniel cheers and calls to his friend how fast he went. Sondre expresses in words that he does not dare. His voice is low, his face is towards the ground and back slightly sunk, which indicates some anxiety and maybe some disappointment. Daniel continues to reassure Sondre and explicitly refers to the risk with “no broken legs” and “you dare”. Sondre’s body language continues to show reluctance/hesitation, but he moves into position on top of the drop. He mumbles to himself and this is interpreted as his mental approach; he repeats Daniel’s words of encouragement to himself just before going over the edge. Previous observations of Sondre and Daniel confirm their relation and their approach to risk; Daniel is a bit more daring and goes first, and then supports his friend in need of encouragement.

In the present study, both environmental and individual characteristics support the identification of risky play. Additionally supporting the identification, the particular characteristic of *increasing the risk* (Sandseter, 2009a, p.12) was observed several times. Children sliding, either on a fixed installation or on the snow would start out sliding sitting upright, then continue to slide on their back and eventually on their stomachs, head first. Similarly, children running downhill would sometimes turn around to continue running backwards. There are also several observations of children, in different ways, obstructing their view while walking, sometimes on very uneven terrain. They would pull their beanies in front of their eyes or put a bucket on their heads and continue walking until they fell or walked into something or someone.

Age characteristics. When looking at age, two-to-three-year olds exhibit risky play in much the same way as described in previous research (Aldis, 1975; Sandseter, 2010c; S. J. Smith, 1998; Stephenson, 2003). When given the opportunity they engage in play with height, speed, dangerous tools and elements, rough and tumble play and a few instances of running away or hiding from the staff (disappear/get lost). As in Example 1, both the risk and the bodily expressions are overt and easy to identify in this age group. However, the same type of situations usually trigger little or none of the same bodily expression with a one-year-old:

Example 2: Elin (T) and Lene (I) slides several times down the long slope in front of the cabin. They go quite fast each time and Elin cheers “Oohooi!” and laughs, sometimes they spin at the bottom or hit the powder snow. Lene, however has a stern face, making no sound, no smile or movement, but each time they reach the top,

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without saying much, they both get on the matt again and Lene makes herself comfortable in front of Elin or on her lap. (Video 0014-16, KG3 Day 3)

Example 3: The group has just finished eating and Nicolai (1) goes over to the “balance bowl”, it is a flat bowl, slightly concave, approx. 10cm deep and approx. 50cm across. It is now turned over on the floor, forming a low convex structure. Nicolai climbs up, hands and feet on the bowl. Safely on top, he tries to raise to a standing position, but gives up and slides off. Sandra (T) puts Celine on the floor (she has been sitting by the table). She crawls quickly and determined to the bowl, crawls up on it. When on top, she just sits there. Face blank, watches a bit around. She then crawls off after 1 min and then crawls back up. At 00:10, she almost slides off and catches herself. She then continues to climb and move around the top for a while. (KG5 Day 1)

Appearance. As with Example 1, these situations were analyzed based on individual and environmental characteristics and previous observations of the child. The environmental characteristic in Example 2 is the speed of the ride, but the expected individual characteristics, such as a smile, a cheer or a tense face, are absent. Previous observations of Lene would predict that she would want to take part in the sliding, but with no overt or expressed thrill. Similarly, in KG2 they had a small indoor plastic slide, which was very popular among all children in the group. What stood out was the one-year-olds seemingly lack of thrill or excitement during the situations, especially while alone. At the same time, they were repeatedly observed sliding, so motivation could be added as an individual characteristic. In Example 3, characteristics for identifying risky play are even weaker. The environmental characteristics of the low, slightly convex structure can easily be overlooked as representing any risk, certainly no risk of injury. The risk is attributed to two individual features in the example. Firstly, Nicolai is a fairly steady walker, but he still gives up standing upright on the bowl. Several other one-year-olds attempted this during the observation and some succeeded. Secondly, when Celine is put on the floor she crawls (she cannot walk) directly and eagerly to the bowl and on to the top. Whether she is experiencing any fear is impossible to interpret from her body language until she almost falls off. She catches herself quickly and moves slightly to safety on top. She then continues to move around on the bowl. The movement of catching herself is interpreted here as an experience of fear, even if the experience is very brief and the fear probably not strong. In other similar examples, the risk could also be identified through the reactions of the staff. For example, if one-year-olds climbed on to low

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tables or chairs, the staff would discourage and eventually remove the children. Nevertheless, the same children would repeatedly seek out the same situations.

The behavior is interpreted as play based on its voluntary appearance. It also seems inner motivated and resembles descriptions from previous research on “toddling” and motor development (Engdahl, 2007; Goodway et al., 2012; Løkken, 2000a; Pellegrini & Smith, 1998). However, the play deviates from the established definition of risky play in several aspects. The thrill is rarely observed; there is less identifiable body language and facial expression and hardly any risk of physical injury. Nevertheless, there is uncertainty, but an uncertainty that is seemingly tolerable and desirable. The behavior is related to age, but more specifically to the ability to walk. The more stable walker a child would be, the more his/her risky play would resemble the existing definition.

Extent. The mapping suggests differences between one-year-olds and two-to-three-year olds considering the extent of involvement in risky play. Of the 198 instances of risky play in Sample 1, one-year-olds were involved in approximately 25% of the instances and two- and three-year olds were involved in the remaining 75%. Similarly, involvement is highest among two- and three-year olds, with involvement up to 17 instances in a day. No one-year-old was involved in more than 10 instances in a day. Additionally, among the one-year-olds there were several that did not involve risky play at all, while among the two- and three-year-olds there was no individual with less involvement than 2 instances in a day. These figures are skewed in favor of the older children due to higher presence on days of observation, not only because of fewer one-year-old participants in Sample 1, but also because of one-year-olds’ sleep and participate in more routine care. The one-year-olds simply have less time to play. Still, the differences in extent in Sample 1 remains large. Comparing the average occurrence of risky play per day in Sample 1 and Sample 2 suggest the same, 25 instances per day in Sample 1 and 15 instances per day in Sample 2.

Gender characteristics. The data from observations suggest that both girls and boys engage in risky play from an early age and equally in a wide variety of activities. The descriptions suggest more similarities than differences when it comes to interest, excitement and variety in risky play. However, the mapping does suggest gender differences regarding extent. The frequencies are 36% involving only girls, 48% involving only boys and 16,2% involving both genders together (Table 1), giving a 12% difference in favor of the boys. This could be skewed, for example if many girls played together in one instance, and especially if this happened often. Therefore, the numbers of registered girls and boys were counted separately.

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Girls were registered playing risky 145 times and boys 196 times. Adjusting the calculation according to the gender distribution of the participants (28 girls, 25 boys) gives a 17% difference in favor of the boys. Both ways of counting presupposes that girls and boys have equal opportunity to engage in risky play and suggest the same pattern, a higher involvement in risky play for boys. In regards to gender and age, one-year-olds show a different pattern, where involvement in risky play reflects the gender distribution in the sample, suggesting no difference between boys and girls. Similarly, Torgersen (1985) found higher activity levels among boys compared to girls at the age of six, but no gender differences among infants. Several studies suggest the same consistent gender differences in activity levels and risk taking behavior in older children and teenagers. Explanations include biological determinants such as higher testosterone levels in boys (Zuckerman, 1983), but also cultural factors such as peer interaction or parental/cultural expectations are important, sometimes mixed with biological factors (Colwell & Lindsey, 2005; Eide-Midsand, 2007; Hancock, Lawrence, & Zubrick, 2014; Hudgens & Fatkin, 1985; Little, Wyver, & Gibson, 2011; Morrongiello, Zdzieborski, & Normand, 2010).

Table 1: Gender (Instances involving Boys/Girls/Both)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Girls	71	35,9	35,9	35,9
	Boys	95	48,0	48,0	83,8
	Both	32	16,2	16,2	100,0
	Total	198	100,0	100,0	

Categories of play

A presumption for the study was that the existing categories might be inappropriate, therefore, categorizing was initially avoided until the in depth analysis. The analysis indicates that the existing categories of risky play (height, speed, rough and tumble, tools, elements and hide) are relevant for two- and three-year-olds. All categories are represented and three categories stand out: Playing with speed (25%), Rough and tumble play (11%) and Playing near dangerous elements (35%). However, to categorize one-year-olds play, proved more difficult. Much of the play observed could not be defined within the existing categories based on environmental characteristics. As in Example 3, the height of the bowl was simply not high enough. Other examples with speed or tools pose the same problem. Additionally, as shown

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earlier, individual characteristics did not suggest risky play either, i.e. lack of excitement or fearful expressions. The descriptions lacked environmental characteristics and objective risk factors, but the observations indicated *subjective* risk. Therefore, the exploration of objects/surroundings was added as an individual characteristic and the name of the category was changed from Playing *near* dangerous elements to Playing *with* dangerous elements. Elements that could be perceived as dangerous were also extended, including elements such as darkness, loud sounds/voices, strangers and unknown environments. Playing with dangerous elements can be understood partly with Lyng's terminology *edgework* (1990), which includes interpreting behavior as testing boundaries, literally or emotionally/mentally, and approaching the edge of ones abilities. This can be applied to all types of risky play, but with regard to one-year-olds, dangerous elements, as defined here, are probably more within their *zone of proximal development*, rather than, for example, high speed or dangerous tools. When separating one-year olds in Sample 1, two categories stand out: Speed (17%) and Elements (63%). In Sample 2, the proportion of *Playing with elements* is even higher (69%) (Table 2).

Table 2: Category_of_play 1 year (Sample 2)

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Height	3	7,1	7,1	7,1
Impact	5	11,9	11,9	19,0
Rough'n'Tumble	2	4,8	4,8	23,8
Tools	2	4,8	4,8	28,6
Elements	29	69,0	69,0	97,6
Other	1	2,4	2,4	100,0
Total	42	100,0	100,0	

In addition, a number of instances eluded existing categories. One type of play had the common individual characteristics of crashing – either themselves or an object – into something. The definition of an impact is *the action of one object coming forcibly into contact with another* (Oxford Dictionaries), which seems a good description of what the children were playing with; either if they repeatedly threw themselves onto a mattress or crashed their tricycle into a fence. A new category was therefore named *playing with impact*. The staff's reactions were added as an environmental characteristic as they sometimes reacted with frightened surprise.

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Finally, some observations had elements of fear, tension or excitement and were categorized as *other*. The analysis showed that a few observations had common characteristics. These were situations where the risk was only observed by the children. When a ski-jump was to take place, a group of two-year-olds would sit down next to the jump and watch, similarly, one-year-olds were observed watching through the window older children slide or play rough and tumble outside. These are few instances, but commonly, the only time one- and two-year olds were observed watching other children at a length of time. This is suggested here as an emergent category named “Vicarious risk”. According to Apter (1992), this experience can have the same arousing effect as a “real” experience, and in this context are additionally interpreted as a pre-phase of risk-taking.

Duration and sociability

Characteristics of short play. A prominent finding from the early observations was the briefness of many instances. These instances put the observer to the test because the situations are literally over in a few seconds. One typical example of such play would be:

Fredrik (2,1) is walking around by himself next to the fireplace outside the main building. There are big logs to sit on around the fireplace (there is no fire now). He walks carefully up a rock on the ground; the rock is pointy and about 30 cm high. He gets to the top and says “Ooooi”, stands up and stretches his arms out to the side. He has a big smile. He loses his balance slightly, catches himself by crouching quickly, and then jumps off. He repeats this in similar forms on other rocks and formations in the forest throughout the day. (Field notes, KG3, day 1)

This way of playing and making use of the environment seems typical for the age group. Parts of the day, the children wander about, and if they come across anything they want to engage with in this fashion, they do it. In most of the established categories, be it playing with height, speed, tools, elements and even rough and tumble, risky play comes in these brief intermezzos, as part of exploring or engaging with their surroundings. It is identified as risky play due to the individual characteristics, of the thrill the child is experiencing. In this case, Daniel is careful when walking up the rock and the reward of reaching the top is obvious in his big smile. While a fall from this height might not lead to injury, he would most probably feel pain, and the excitement is increased by him almost falling and catching himself on the way down. This situation lasted just under 30 seconds and prompted an interest in the characteristics and duration. The mapping show that about half of all instances (49,5%) are

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short. While separating one-year-olds in Sample 1, 57% of all instances are short. In Sample 2, 66% of all instances are short.

Characteristics of longer risky play. A typical longer session would be as following:

Assistant 5 (A5) has a long session with tickling and light rough and tumble with Sofia (1,3), Christopher (1,3), Lucas (2,2), Julie (2,5) and Alexander (2,10). She starts out with Sofia and Christopher and the others are drawn to the play and take their turn being “chased” by A5. She sitting at the same place against the wall by the slide, grabbing the children when they get close enough. A5: “There! I got you!” She making sounds (growls) when she’s tickling the children! There! Now! You’ll never get away! The children squeal and laugh and run off, but are soon circling just close enough for her to grab them. Their bodies are alert and tense and constantly ready to leap away from the grabbing hands of A5. When they run off or when she grabs them they sometimes bump into each other, and two times there are some crying, but it ends quickly. A5 helps them to their feet and they are off, teasing her to catch them. This goes on for about 7 minutes, then A5 goes off to change diapers.

The distinctively different characteristics of short and long instances prompted further analysis of the extent of different types of play occurring and were coded *long* and *short*. The rule for coding an instance *short* was that it lasted approximately 1 minute or less. Any play lasting longer than 1 minute was coded as *long*. The reason for this was the distinct briefness of many situations. Situations lasting for two minutes and longer, even up to 30 minutes, had more similarities between them than with the very short ones. The similarities include that they often involve two or more children and sometimes staff; the play often has components of role-play, and can also involve rough and tumble. There are also longer sessions with more repetitive play such as swinging or sliding (in winter). This type of play does not have the social features of role-play or rough and tumble, but are often sociable, meaning the children play two or more together, for example swinging. The mapping show that 71% of all long sessions of play are social, while only 19% of all short sessions are social play. Among two- and three year olds, social play makes up 45% of all instances, while for one-year-olds (in Sample 1) only 20% are social play. The same is found in Sample 2 with 28% of all instances being social play. These findings are in line with those of Pellegrini & Smith (1988) who investigated three typical age-related traits of physical play from infancy till primary school age. The play is described as a sequential development, starting in infancy with *rhythmic stereotypes* (gross motor movements with no apparent purpose to them) to *exercise play*

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(gross locomotor movements in the context of play) in the preschool age. *Rough and tumble play* occurs increasingly in the late pre-school years and is seen as the predominant physical play in the primary school age. While exercise play can be both solitary and social, rough and tumble has a distinct social character. This describes a general trend in age-related play development; from partly solitary and repetitive play to predominantly social and more complex play (Goodway et al., 2012; P. K. Smith, 2005; Sutton-Smith, 2009).

Location

Observations indicate that more risky play happens outdoors than indoors. The mapping supports this, showing that 65% of all instances in Sample 1 happen outside. This reflects previous research, suggesting that physical and risky play are related to outdoor activities (Aarts et al., 2010; Cosco et al., 2010; Sando & Lysklett, 2012; Storli & Hagen, 2010). However, when looking at age, one-year-olds only spend a small proportion of their day outdoors, and therefore play more risky play indoors. The mapping shows that, in Sample 2, 66% of all instances happen inside. Age related figures in Sample 1 confirm this with 37% of all one-year-olds' instances happens outside, while 74% of two-to-three year olds instances happen outside.

Conclusion

The present paper suggests that the existing definition and characteristics of risky play are appropriate for two- and three-year-old children. Regarding one-year-olds, the study suggests several deviations from the existing understanding of risky play. The term one-year-old must be seen in relation to the ability to walk. The better a child is at walking, the better it will fit into the existing definition. One-year-olds play less risky play than their older peers, and when playing, they express less emotion, especially while alone. They do not show the same overt, easy-to-identify body language and facial expressions as their older peers. The mapping suggests that typical characteristics for one-year-olds' risky play are higher occurrences of "short", "alone" and "indoor" play than for two- and three-year-olds. While two- and three-year old boys are more involved in risky play than their female peers, the same gender difference is not observed among one-year olds. One-year-olds' main risky activity is playing with dangerous elements, where the term dangerous must be emphasized as subjective. Their play involves exploring and testing their surroundings and their bodies in relation to these. To expand the understanding of one-year-olds' risky play, this paper suggests adding "Playing with impact" and "Vicarious risk" as new categories of risky play and an adapted definition -

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play that involves uncertainty and exploration – bodily, perceptual or environmental – that could lead to negative consequences.

Being an exploratory study with a low number of participants, the study has limitations, particularly in regards to generalization. The validity of the suggested definition and characteristics will be further tested by future studies' ability to utilize or reproduce these findings. Taking the rapid, global expansion of professional childcare into consideration, equally important would be to investigate how childcare centers deal with this type of play, i.e. creates zones of proximal development for all children. The described behavior among one-year-olds, presumes high levels of attention and sensitivity among child-care staff and research should elucidate how caregivers observe, support and/or engage in this type of play.

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