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Rasmus Kleppe <sup>a</sup>, Edward Melhuish <sup>b</sup> and Ellen Beate Hansen Sandseter<sup>c</sup>

<sup>a</sup>Department of Early Childhood Education, Faculty of Education and International Studies, Oslo and Akershus University College of Applied Sciences, Oslo, Norway; <sup>b</sup>Department of Psychological Sciences, Birkbeck University of London, London, UK; <sup>c</sup>Department of Physical Education and Health, Queen Maud University College of Early Childhood Education, Trondheim, Norway

## ABSTRACT

While research has investigated risk-taking in play for children from the age of four years upwards, less is known of risky play with children under four years. A small-scale observational study with children from five childcare settings with differing characteristics was undertaken to explore the occurrence and characteristics of risky play for children under four years of age, in relation to the current understanding of risky play. The study found similarities across the different contexts, which seem to reflect the characteristics of risky play for children aged one to three years. The findings suggest that the existing definition and characteristics of risky play are appropriate for two- and three-year-old children, but for one-year-olds, the study found discrepancies indicating deviations from existing definitions, indicating that the concept may not be so useful for this age group. To develop understanding of risky play, this article suggests new categories and an adapted definition.

## KEYWORDS

risky play; exploratory play; children under three; one-year-olds; exploratory study

## Introduction

There has been growing interest in why children take risks and what the effects might be (Aldis 1975; Boyer 2006; Byrnes, Miller, and Schafer 1999; Christensen and Mikkelsen 2008; Christensen and Morrongiello 1997; Pellegrini and Smith 1998; Readdick and Park 1998; Sandseter 2010b; Sandseter and Kennair 2011; Smith 1998; Stephenson 2003). The literature defines risk-taking as actions with a probability for undesirable results or negative consequences, and suggests that the ability to understand situations, to assess own capabilities, and to avoid excessive risks are important for development. Children express and practice these abilities typically as play, hence the term risky play (Sandseter 2007). Consequently, the intrinsic value of play must also be considered (Lillemyr 2009; Sutton-Smith 1997).

Although it is well established that children from four years and up take risks in play, little is known of younger children's risky play (Pramling Samuelsson, Bjørnstad, and Bae 2012, 21). With a global increase in enrollment of children under three in Early Childhood

Education and Care (ECEC) (Engel et al. 2015), we need knowledge of all aspects of children's play. Hence, this article investigates the occurrence and characteristics of risky play by children in the age range one to three years and considers whether existing definitions of risky play apply or if alternative definitions or adaptations are necessary.

## Previous research

Children's risk-taking in play has been studied since the 1970s (Aldis 1975; Bruner 1976), but it is under-developed with limited consensus on definitions. However, the literature indicates that children's risk-taking in play has common characteristics. Generally, research suggests that risk-taking in play imitates real-life risks through play (Aldis 1975; Sandseter and Kennair 2011), and includes curiosity, exploration, deep concentration, fear and excitement. Children explore their surroundings and their capabilities through trial and error, and their behavior involves a balancing act between exhilaration and fear, as the child either masters the challenge or withdraws because of fear (Christensen and Mikkelsen 2008; Cook, Peterson, and DiLillo 1999; Sandseter 2010a). This 'edge-work' (Lyng 1990) involves the child increasing the risk, e.g. climbs a little higher each time or ventures further from the adult (Aldis 1975; Smith 1998). Although fear has its natural place in risky play, the literature tends to focus on fun and thrill, with overt sounds and body language such as screams, laughs and big movements (Mårtensson 2004; Readdick and Park 1998; Sandseter 2007). Sutton-Smith (1997) sees fun and exhilaration as strong motivational factors conducive to repetition of some risky play. In this vein, risky play is linked with vigorous physical activity, specifically 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 sticks (Hughes 2012; Kaarby 2005; Sandseter 2010b; Smith 1998; Stephenson 2003). Notably, research suggests that such vigorous physical activities happens more outdoors (Aarts et al. 2010; Cosco, Moore, and Islam 2010; Storli and Hagen 2010), and risky play is seen typically as outdoor play (Stephenson 2003). Rough-and-tumble play is regarded as risky play by researchers as it has the potential for (unintentional) harm (Blurton-Jones 1976; Humphreys and Smith 1984; Pellegrini and Smith 1998; Smith 2005). Bringing these perspectives together, Sandseter (2010b) offers this definition: '[risky play] involves thrilling and exciting forms of physical play that involve uncertainty and a risk of physical injury' (22). Additionally, she identifies six categories of risky play: (1) Play with great heights (danger of injury from falling); (2) play with high speed (uncontrolled speed that can lead to collision); (3) play with dangerous tools (that can lead to injuries); (4) play near dangerous elements (such as fire, water or heights); (5) rough-and-tumble play (where children can harm each other); and (6) play where the children can get lost.

Thus, research links risky play to exploratory behavior and an observable balancing act between fear and exhilaration. There is an emphasis on vigorous physical activity, overt bodily expressions, fun and thrill, mostly outdoor activities and risk of physical injury.

## Conceptualizing risk and play

Historically, risk-taking behavior is regarded as something to be avoided (Boyer 2006; Lyng 1990; Malaby 2002). Certainly, risk-management per se is not concerned with balancing

cost and benefit but with *reducing* risk (Adams 2001, 16). Similarly, risk-taking from a psychological perspective has focused largely on maladaptive social functions named ‘the prevailing developmental psychopathology model’ (Ellis et al. 2012, 598). In contrast, literature on risky *play* focuses largely on the intrinsic value and learning potential of the behavior. This notion, that risk-taking is part of life and has both positive and negative effects, and should therefore be investigated more comprehensively, seems now to have wider influence (Boyer 2006; Christensen and Mikkelsen 2008; Ellis et al. 2012). Adams (2001) suggests expanding the understanding of risk by distinguishing between objective and subjective risk. Objective risk involves pre-defined, observable or measurable risk, while subjective risk involves how individuals perceive risk in different situations. Sandseter (2009a) suggest that objective risk can be observed as the *environmental characteristics* of the situation, e.g. height, speed, unstable surfaces, etc. Subjective risk can be observed as *individual characteristics*, i.e. how the child expresses its experience through body language, facial expressions, sounds or words. While exploring objective risks, the child will adjust its subjective experience and expressions (Aldis 1975; Apter 1992; Sandseter 2009b), a process that can be interpreted as self-regulation (Byrnes 2013). Applications of Vygotsky’s concept of *zone of proximal development* (1978, 84), resonate with this, as children explore their surroundings, and, by giving themselves increased challenges, create their own zone of proximal development (Johnson, Sevimli-Celik, and Al-Mansour 2012).

While there are conflicting perspectives (Lillemyr, Dockett, and Perry 2013), there are common characteristics in play theories, namely that play is intrinsically motivated, voluntary and ‘purposeless’, meaning that the activity in itself is more important than its ends (Johnson et al. 2012; Lillemyr et al. 2013). This links play and *learning*, with the implication that an activity can be simultaneously purposeless and functional. This paradox (Martin and Caro 1985) can be resolved in recognizing that play has both immediate and mediate effects, simultaneously bearing intrinsic value and learning potential (Lillemyr 2009; Pellegrini, Dupuis, and Smith 2007). Additionally, for lack of research under four years, this study needs terminology for play in relation to age. As with play and learning, this dimension yields conflicting theoretical positions, such as the assumption that play follows a universal, sequential, age-related developmental trajectory (Pellegrini and Smith 1998; Piaget 1954; Smith 2005), as opposed to the concept of play as a culturally situated and complex phenomenon (Engdahl 2007; Løkken 2000; Merleau-Ponty 2012). This complex debate is omitted here, and, rather, both perspectives are applied pragmatically, in aiming at descriptive identification and characterization of play at certain ages.

Generally, we need to be circumspect regarding any preconceptions from previous research on older children. Thus interpretations of observations here are based on a basic understanding of risky play: ‘... risk taking involves the implementation of options that could lead to negative consequences.’ (Byrnes et al. 1999, 367). Risk is unavoidable, and has both negative and positive effects, so, risk-taking *in play* can be potentially valuable, for the child to both experience the potential excitement and joy, and providing practice in dealing with risky situations, which are sometimes inevitable.

## Method

In exploring a new phenomenon, qualitative approaches with few participants are often recommended (Johannessen, Tufte, and Christoffersen 2010) and the ethnographic role

as *participant observer* is emphasized as particularly suitable to gain insight into children's lives (Corsaro 2003; Gulløv and Højlund 2003; James and Prout 1997; Lange and Mierendorff 2009). Hence, in this study, so-called short-term ethnography (Pink and Morgan 2013) was chosen as the main data-collection technique. Pink and Morgan (2013) suggest that this method is especially appropriate within theoretically informed, applied research. In contrast to traditional ethnography, where the ideal is long-term participation, this exploratory study has a narrow focus, and applies less intrusive and time-consuming data-collection (Knoblauch 2005; Millen 2000). Still, the purpose of the ethnography is to obtain rich or thick descriptions (Geertz 1994). To achieve this, observations should include many situations, also situations normally occurring outside of the staff's view, and Corsaro (2003) suggests that this can be obtained by behaving differently from regular staff. From the start, the staff generally appeared playful and involved with the children and the role of 'detached observer' was chosen (Gulløv and Højlund 2003, 40). Carrying a notebook and a video camera strengthened the position as both different and detached. On day three of data collection, Daniel (three-years-old) indicated the achievement of this role: '... points at me and shouts: Look! He's not an adult! Because ... he does not have children! He is a child! He does not have children, hah!' (Video 0016, ECEC Center 3 (Nature center), Day 3).

In line with recommendations for short-term ethnography, multiple data collection techniques are utilized. Together with ethnography, mapping is applied to provide an overview of complex situations and comparable data on extent and context (Cosco, Moore, and Islam 2010). Video is applied to increase the level of detail in descriptions (Knoblauch and Schnettler 2012).

## **Participants**

There are several ways to select participants for a qualitative study. According to Seawright and Gerring (2008), selecting qualitative samples has the same 'twin objectives as random sampling; that is, one desires: (1) a representative sample; and (2) useful variation on the dimensions of theoretical interest.' (2008, 296). In this study, it was realistic to prioritize the latter and five ECEC center groups were included. Two ECEC center groups were selected from the BePro-sample (BePro 2013) (Norwegian longitudinal study, including 206 ECEC center groups) based on their varied scores (high and low) on the Infant Toddler Environmental Rating Scale (ITERS-R) (Harms, Cryer, and Clifford 2006).<sup>1</sup> The ITERS-R does not address risky play directly, but several items touch on the topic, such as physical activity, supervision and safety. The kindergartens' varied scores strengthen the potential for generalization, meaning that similarities in different contexts are more likely to represent general patterns (Gobo 2008). For similar purposive sampling reasons (Teddlie and Yu 2007), two forest kindergartens were included, where children spend most of their time outdoors, in a natural environment, and offer increased probability of relevant observations. Research suggests that vigorous physical activity, and therefore risky play, will occur more often outdoors (Aarts et al. 2010; Cosco et al. 2010; Sando and Lysklett 2012; Storli and Hagen 2010). For similar reasons, one infant-toddler group was included. After the first seven days of data-collection, the observations indicated deviations amongst one-year-olds from the predominant understanding of risky

play. Therefore, to strengthen detailed descriptions, it was decided to observe only one-year-olds for parts of the remaining data-collection.

Groups consisting of one-to-three-year-olds were observed for ten days. One-year-olds were observed for four additional days. The groups were observed between August and February the following year and the participants consists of 28 boys and 25 girls, with 26 one-year-olds, 20 two-year-olds and seven three-year-olds. The low number of three-year-olds reflects Norwegian practice, where children move to the older age group within the semester they turn three.

### **Ethical considerations**

Research is necessary to obtain knowledge for the welfare of children. Observing children is therefore sometimes necessary, but measures should be made to secure the rights and integrity of study participants. The study adheres to all ethical standards and privacy policies of the Norwegian Social Science Data Service and Norwegian Data Protection Authority, which ensures participants' confidentiality and anonymity. The approval presupposes informed consent from all parents of children, which was obtained. Still, children themselves should have a say, and the possible experience of intrusiveness was 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 comprehension. Most importantly, the children could give 'ongoing consent' (Flewitt 2005, 556), meaning that if a child showed signs of discomfort related to the presence of the observer, the observer would withdraw. In addition, the study's focus is risky play and there would be occasions where children might be physically injured. In such cases, continuous judgement was necessary to decide whether to intervene, and avoiding injury was given priority over the role as detached observer. No such situations occurred during the observations.

### **Observations**

The groups were normally observed throughout the day, for about seven hours. With few children in each group and/or physical limitations, e.g. fences or closed doors, it was possible to observe all children most of the time. In all five kindergartens, children's everyday life had several routines, such as diaper change, meals and naps. The children were observed in all activities and transitions between activities. However, the major issue was to determine whether a behavior could be characterized as risky play, so describing all activities would be infeasible and unnecessary. Therefore, any situation that was perceived potentially dangerous, either by the child, staff or the observer was mapped and described to answer two basic questions: Are there environmental or individual characteristics in the situation that indicates risk? And: Can the child's behavior be characterized as play? For the sake of interpretations, the descriptions elaborate on actions, facial expressions, body language, voice/sounds and verbal expressions of both staff and children. In addition, the following information was collected for each instance of risky play.

- *Who* – with codes for individuals, gender and age. In this article, children have a pseudonym and their age is given in brackets, e.g. Lene (1.5).
- *What* – with descriptions of activities leading to coded categories.

- *Staff reactions/involvement* – with description of interaction to be coded for later analysis. Here staff have 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

Video-recordings were done for two days, one day in a forest kindergarten and one day in the infant-toddler group. The videos were coded similarly to the field notes (Knoblauch and Schnettler 2012).

### **Mapping**

The purpose of the mapping is to provide supplementary information to the qualitative descriptions; to establish to what extent risky play occurred and to collect comparable, contextual data (Cosco et al. 2010). Several mapping tools were reviewed, but all instruments were missing terminology related to risky play. Alternatively, risky play could be defined as *vigorous physical play*, a category in several instruments. However, if the children in focus would display other types of risky play, relevant observations would be missed. Therefore, a mapping tool was developed for the present study. The categories of the mapping reflect the codes described earlier, and could be represented quantitatively.

The mapping was piloted in two kindergartens to investigate the relevance of the codes and the usefulness for observations and analysis. Small adjustments were made to the mapping format throughout without altering the basic content so that early and later mappings are comparable. Since the mapping has not been subjected to inter-rater reliability, the mapping will not be emphasized as evidence as such, but as support for the general patterns and descriptions.

### **Analysis**

From the first days of observations, children were observed playing in ways that could be identified within existing definitions of risky play, but there were also observations of children in 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, the two criteria of environmental and individual characteristics (objective and subjective risk) were applied in the analysis. This was combined with previous observations of children's behavior in similar situations. Staff reactions were considered in assessing environmental characteristics, as an outside observer might overlook some risky aspects of a situation.

### **Analytic sample**

This article's basic variable for analysis is *Instances of risky play*. One 'play' or game counts as one instance and 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, Staff reactions/involvement, Location, Sociability, Duration*, for statistical analysis.

This gives a sample where  $n$  represents the total number of instances of risky play observed in 12 days. Comparison of these instances across different contexts is made feasible through precise observational criteria and coding (Gobo 2008). As mentioned, on three 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 together, this would over-estimate one-year-olds' number of instances compared with older peers. Therefore, these three days cannot be compared statistically with the observations of the full groups, and are considered as a separate sample. This gives two samples of instances of risky play: Sample 1, including children one-to-three years ( $N=198$ ), Sample 2, with one-year-olds only ( $N=46$ ).

Individual children were described and mapped in detail, including age in months. However, in the statistical analysis, age categories are one, two and three years. Individual differences in age-related development are more nuanced than this, but splitting age into months in the statistical analysis would give very small numbers in each age group. Moreover, one main finding is related to the ability to walk. Since this ability normally is developed in the second year and stabilizes in the third year (Goodway, Ozun, and Gallahue 2012), this categorization was considered sufficiently detailed.

## Findings and discussion

Regarding appearance and content of play, there are variations when it comes to how each child expresses itself and engages in risky play. However, based on the described criteria, risky play was observed in the age group one to three years in all five ECEC center groups on all days of observation. The mapping and descriptive similarities found across different contexts, suggest consistent patterns. These patterns can be regarded as characteristics of risky play in the age group one to three years.

### ***Common characteristics of risky play in the age group two-to-three years***

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

*Example 1: Sondre (2.9) and Daniel (3.3) 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 'No' and climbs down [he is discouraged]. He slides off from a lower boulder. He watches Daniel as he slides again from the higher boulder, and Daniel looks back up at him and assures: I didn't break my legs! Daniel goes on to reassure Sondre that he dares: 'It is not big!' 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!* (Video 0016, ECEC Center 3 (Nature center), Day 3)

This episode is interpreted as play based on its voluntary appearance, exhilaration and repetitiveness; the play goes on for more than 20 minutes. Moreover, it is interpreted as risky play based on the combination of environmental characteristics (objective risk), individual characteristics (subjective risk) and increase of risk. The environmental characteristics are the height of the boulders (double the children's height) and the steep incline, which gives high speed. The risk of physical injury is even addressed by the children. The individual characteristics are firstly attributed to the fun and thrill the boys express through their body language and excited cheers. Secondly, the subjective risk can be observed as Sondre is balancing between exhilaration and fear. First, he slides from a lower boulder, and while increasing the risk, by going higher, he hesitates and withdraws with fear. He expresses both with body language and in words that he does not dare. His voice is low; his face is towards the ground and back slightly sunk, which indicates anxiety and maybe disappointment. Daniel continues to address the risk and simultaneously reassures Sondre that there will be 'no broken legs' and 'you dare'. Sondre's body language continues to show hesitation, but he moves into position on top of the boulder. What he mumbles to himself is interpreted as his mental approach; he repeats Daniel's words of encouragement just before going over the edge. Sondre's reaction after sliding down confirms his exhilaration and reward of mastering the challenge: 'I dared!'

As both individual and environmental characteristics confirm the situation as risky play, the aspect of increasing the risk is interesting. The rewarding thrill and exhilaration of mastering seem to be a strong motivational factor in risky play (Sandseter 2009b). As the child progressively masters an increased objective risk, the subjective risk and therefore the exhilaration decreases. Consequently, the objective risk is increased, to optimize exhilaration (Apter 1992; Sandseter 2009b). This is typically observed as children each time climb a little higher or venture further from the staff (Sandseter 2009a). As in Sondre's example, children were observed doing this throughout the observations. For example, while sliding, they would start out sliding sitting upright, and then continue to slide on their back and eventually on their stomachs, head first. This can also be interpreted as a learning aspect of risky play, where the child is motivated (and where the environment allows), to constantly increase the challenges within the changing zone of proximal development.

### ***Duration and sociability – short and long play***

A prominent finding is the briefness of many instances of risky play. 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:

*Example 2: Fredrik (2.1) is walking around by himself next to the fireplace outside the main building. 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.* (Field notes, ECEC Center 3 (Nature center), Day 1)

This way of playing and using the environment seems typical for the age group. Parts of the day, the children wander about, and they engage with anything they might come

across. 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 mainly due to the individual characteristics, for example, the thrill the child expresses. In Example 2, 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 probably feel pain, and the risk is apparent by him almost falling and catching himself on the way down. This situation lasted just under 30 seconds.

The rule for coding an instance *short* was that it lasted approximately one minute or less. Any play lasting longer than one 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 rough and tumble. There are also longer sessions with more repetitive play such as swinging or sliding. This type of play does not have the social features of role play or rough and tumble, but is often sociable, meaning the children play two or more together, for example swinging. The mapping shows that long sessions of play are dominantly social (71%), while few of the short sessions are social (19%).

In summation, two- to three-year-olds exhibit risky play in much the same way as described in previous research. Both the objective risk is apparent in the environmental features and the subjective risk is apparent in the individual bodily expressions; overt and easy to identify. 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). Three categories stand out: Playing with speed (25%), Rough and tumble play (12%) and Playing near dangerous elements (39%) (Table 1).

### **Common characteristics of one-year-olds risky play**

Where two- to three-year-olds' risky play largely resembles previous research, similar situations involving one-year-olds could appear different, either based on the environmental or the individual characteristics, or both:

*Example 3: The group has just finished eating and Nicolai (1.7) goes over to the 'balance bowl', it is a flat bowl, slightly concave, approx. 10 cm deep and approx. 50 cm across. It is now turned*

**Table 1.** Categories of play for one- to three-year-olds (Sample 1).

		Frequency	Percent
Valid	Height	15	7.6
	Speed	49	24.7
	Impact	15	7.6
	Rough'n'Tumble	24	12.1
	Tools	8	4
	Elements	77	38.9
	Run_away	4	2
	Vicarious risk	3	1.5
	Other	3	1.5
	Total	198	100

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. He makes no sounds and keeps a stern face throughout. Sandra (T) puts Celine (1.3) 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. (Video 0031-34, Infant-toddler group, Day 1)

Throughout the observations, children under two years of age were in situations where the objective risk could be identified, but where the individual characteristics were not observed as expected. Children would climb, slide or swing with very little overt body language of hesitation, thrill and excitement. Sometimes, also the objective risk, observed as the environmental characteristics in Example 3, proved difficult to identify. Here, the low, slightly convex structure can easily be overlooked as representing any risk, certainly no risk of injury. Rather, the risk is attributed to two individual characteristics in the example. Firstly, Nicolai is a steady walker, but as he increases the risk by trying to stand up on the bowl, he withdraws. Several other one-year-olds attempted this 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, i.e. she seems highly motivated. Whether she is experiencing fear is impossible to interpret from her body language until she almost falls off. She catches herself quickly and moves to safety on top. She then continues to move around on the bowl. The movement of catching herself is interpreted as a subjective risk, an experience of fear, even if the experience is very brief and the fear probably not strong.

As in Example 1 and 2, Nicolai's and Celine's behavior is interpreted as play based on its voluntary appearance and intrinsic motivation. However, the excitement described in Example 1, is not observed. This resonates with age-related theories of physical development and play. Pellegrini and Smith (1998) describes this sequential; starting in infancy with *rhythmic stereotypes*, i.e. gross motor movements with no apparent purpose. In the preschool age, *exercise play*, i.e. gross locomotor movements in the context of play, is predominant, while *rough and tumble play* occurs increasingly in the late preschool 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; Smith 2005; Sutton-Smith 1997). Seen this way, risky play follows a general pattern, and Celine's and Nicolai's play can be observed as subtle, i.e. less sociable, less extrovert, more repetitive and more focused because of their age, specifically related to their agility. The more agile a child would be, the more his/her risky play would resemble the existing definition. The mapping supports the assumption of age-related play, suggesting that children, with age, increasingly engage more in long and social play. However, one- and two-year-olds were observed involved in long sessions of social risky play, such as rough and tumble, and the play appears both social and complex. Therefore, the concept of *exercise play* seems too narrow, and, rather, the social *toddling style*, as described by Løkken (2000) and Engdahl (2007), seems a more appropriate description of under-three's risky play, including one-year-olds.

### **Extent of risky play**

The mapping also suggests differences between one-year-olds and two- to three-year-olds regarding 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% (Table 2). Similarly, involvement is highest among two- and three-year-olds, with involvement up to 17 instances in a day. No one-year-old was observed being involved in more than 10 instances in a day. Additionally, among the one-year-olds there were several that did not involve in risky play, while among the two- and three-year-olds there was no individual with less than two 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 one-year-olds sleep and participate in more routine care. The one-year-olds simply have less time to play. Still, the differences in frequency of risky play in Sample 1 remain large. Comparing the average occurrence of risky play per day in Sample 1 and Sample 2 suggests the same, 25 instances per day in Sample 1 and 15 instances per day in Sample 2.

### **Adaptation of categories**

Initially it was presumed that existing categories might be inappropriate, therefore, categorizing was avoided until the in-depth analysis. Indeed, in contrast to the two- and three-year-olds, one-year-olds' play proved difficult to categorize. As described above, much observed play could not be identified within existing categories based on environmental or individual characteristics. However, the observations indicated *subjective* risk, albeit subtle. Therefore, in line with the short duration of many instances (Example 2), 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 and unknown objects or environments. Playing with dangerous elements fits 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 regards 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. This decreases also the aspect of risk of physical injury, as in Example 2 and 3. 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.** Involvement/age (Sample 1).

	Frequency	Percent
1 year	40	20.2
2-3 year	140	70.7
Mixed group	18	9.1
Total	198	100

Finally, some instances eluded existing categories. One type of play had the common individual characteristics of crashing, either themselves or an object, into something. 'Impact' is defined as 'the action of one object coming forcibly into contact with another' (Oxford Dictionaries 2015), which seems a good description of the children's play; 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 used as an environmental characteristic as they sometimes reacted with frightened surprise.

Some observations had elements of fear, tension or excitement that were categorized as *Other*. The analysis showed that some of these 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. 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 is additionally interpreted as a pre-phase of risk-taking, with a potential learning aspect.

## Conclusion

This article 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. In this context, the term one-year-old must be seen in relation to motor development and in particular, the ability to walk. One-year-olds show less risky play than 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. Typically, one-year-olds' risky play is more brief and solitary compared to two- and three-year-olds. One-year-olds' main risky activity is playing with dangerous elements, where the term dangerous must be emphasized as subjective. Their risky play involves exploring and testing their surroundings and their bodies in relation to these. To expand the understanding of risky play, this article suggests adding 'Playing with impact' and 'Vicarious risk' as new categories and an adapted definition – *play that involves uncertainty and exploration – bodily, emotional, perceptual or environmental – that could lead to either positive or negative consequences*.

Being an exploratory study with a low number of participants, the study has limitations. However, the number of instances observed and similarities across the different contexts suggest the potential for generalizability of the findings. 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 childcare into consideration, equally important would be how childcare centers deal with this type of play, e.g. creating zones of proximal development for all children. The described behavior among one-year-olds, presumes high levels of attention and sensitivity among caregivers and research should elucidate how caregivers observe, structure and/or engage in this type of play.

## Note

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