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# Children's holistic learning during self-initiated outdoor play in a Norwegian kindergarten

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## ABSTRACT

This article explores children's self-initiated outdoor play and holistic learning in a Norwegian kindergarten. While children's self-initiated play is valued in Nordic ECEC, it is rarely analyzed in relation to holistic learning. To explore how children's self-initiated outdoor play contributes to children's holistic learning in ECEC, we observed a group of twenty-four-five-year-old children during outdoor play in a Norwegian kindergarten, taking field notes and photographs. We analyzed it with a biosocial approach, where learning is understood as produced through an assemblage of social and biological forces. We found that with a creative and imaginative attitude, children sought intense and novel physical experiences and interactions with each other, other species, and things, while also navigating rules, relationships, and their own and others' emotions. We discussed the strategies we observed in relation to 'indirect pedagogy' and teacher-led pedagogy, challenges relating to risk, and young children's opportunities for holistic learning through self-initiated play in ECEC.

## KEYWORDS

Play; holistic learning; bio-social; early childhood education; Nordic kindergartens; outdoor play

## Introduction

In this article, we explore children's outdoor play in a Norwegian kindergarten as a self-initiated holistic learning activity through a biosocial (Youdell and Lindley 2019) perspective. Nordic countries adhere to holistic learning (Froebel 1895) in which play, care, and learning are seen as intertwined and inseparable (Johansson 2020; Ringsmose and Kragh-Müller 2017). While the holistic tradition continues to thrive, internationally and in Norway, play is increasingly related to academic learning and cognitive development in research (Karlsen and Lekhal 2019). We have some research concerning to what extent adults involve themselves in children's free play (Karlsen and Lekhal 2019) and substantial research concerning how adults can enrich and expand children's learning through more involvement in children's play (Siraj-Blatchford et al. 2002). However,

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the question of how and what children learn holistically through self-initiated play when adults are *not* involved has not been sufficiently explored.

This article builds on a small observational study to explore how, with what and whom 4–5-year-old children play outdoors in a Norwegian kindergarten. Our aim is to contribute knowledge regarding how children engage in holistic learning during self-initiated, unstructured outdoor play. We discuss the strategies we observed and challenges relating to children's opportunities for holistic learning in ECEC and explore the circumstances under which holistic learning can or cannot happen.

### ***Norwegian kindergartens and the Nordic holistic tradition***

Children's self-activity and autonomous drive to play and learn were the foundation of Froebel's (1895) thinking for kindergarten pedagogy. It is widely established that child-directed activity in the early years offers the best foundation upon which to learn and the desire to speed up or pre-define learning outcomes in the early years is detrimental to children's well-being and holistic learning potential (Broadhead 2001). Self-initiated outdoor play is a unique and respected feature of Nordic kindergartens (Kragh-Müller 2017, 10) that seems to be declining, as children in Scandinavia and abroad are spending less time playing outside (Andersen et al. 2017; Aslanian, Andresen, and Baasland 2020; Lester and Russell 2010).

The Norwegian ECEC curriculum (Ministry of Education and Research 2017) is grounded in fundamental values, including the intrinsic value of childhood. The curriculum is process-oriented and loosely structured around subject areas with the aim to ensure many and varied opportunities for child-initiated play, physical exercise, and social interactions with peers and staff that foster children's autonomy and thus democratic values (Kragh-Müller 2017). The kindergartens embrace holistic learning and are part of a social-pedagogy tradition, rooted in charity caregiving and Froebel's kindergarten concept from the late 1800s. Building on the Froebelian pedagogic philosophy, play is traditionally understood as voluntary and child-initiated and as the main activity in kindergarten (Kragh-Müller and Isbell 2010). Over a decade ago, Moser and Martinsen (2010) found that two-thirds of children's time is spent outside in unstructured play. Since then, participation in Norwegian kindergartens has increased, and the Ministry of Research and Education has increased its focus on kindergarten as an arena for school preparation. The concept of school-based learning has entered the kindergarten, overshadowing perhaps the more 'silent' tradition of holistic learning. Perhaps related to this development, the field struggles to understand what holistic pedagogy entails (Børhaug et al. 2018) and time spent outside playing is often overlooked as a source of intentional pedagogy and holistic learning.

### ***A biosocial perspective on play and learning in ECEC***

We draw on Youdell and Lindley's (2019) theorization of a biosocial approach, where learning is understood as produced through an assemblage of social and biological forces. Youdell and Lindley (2019) encourage education researchers to research learning as a biosocial phenomenon, understanding learning as a process of meaning-making through individual and group relations with the social and material environment.

Learning is conceptualized as the making of memory, interactions between people and things, embedded ways of being in communities, and recognition and love between individuals (Youdell and Lindley 2019). Learning from a biosocial perspective occurs all the time and involves all experiences children have, both within and outside of structured pedagogic environments.

When it comes to theorizing play, Sutton-Smith (2009) writes ‘we fall into silliness’, as scholars cannot agree on a single definition. Some of the most outstanding scholars of play have been concerned by this ambiguity (Bateson and Martin 2013). Play theories are colored by the field of discipline that the researcher belongs to. In general, play is characterized as voluntary, internally motivated, based on imagination and fantasy, and includes interaction and communication (Broström 2017) and play therefore has a significant role in children’s holistic learning. We can imagine when children play and climb excitedly up a jungle gym and swing toward their friend on the other side, how a myriad of feelings, senses, thoughts, and decisions are underway in the child. Through play, a child learns about themselves, in and through their environments, their relationships with their friends, and the world around them.

Burghardt (2005) describes play as the intentional creation of uncertainty. Children create risk and complexity for pleasure and through play create scary and thrilling situations (Sandseter and Kennair 2011). Common apparatuses such as the slide, the jungle gym, and swings are used to create speed and induce fear that children control themselves (Stephenson 2010). Through physical and risky play children learn about their world, their bodies, and each other’s capabilities, which can increase empathy, cause them to avoid injury and manage risk (Edgington 2007; Tovey 2007) while building their self-awareness, perseverance, self-confidence, and independence (Tovey 2007). Additionally, they learn spatial-orientation and develop perceptual motor skills as well as mastering social skills through conflict resolution (Sandseter and Kennair 2011). Through fear and joy experienced in risky play, children also learn to balance their emotions and to deal with phobias and fears (Sandseter and Kennair 2011). Play evokes strong emotions that shape areas of the brain that concern emotion, motivation, and reward, and that contribute to children’s establishment of relationships between their brain, body, the social and physical environment (Burghardt 2005 in Lester and Russell 2008). From an evolutionary perspective, play allows children opportunities to exercise their autonomy and establish relationships and connections between themselves and others, including other species, things, and the earth.

Play with peers is a vital aspect of learning in childhood for many animals, including humans (Burghardt 2016), and is closely related to creativity (Russ 2014). Lester and Russell’s (2008) work highlights learning as an ongoing process that occurs during spontaneous interactions between children and things (nature, toys, objects) in the world around them. This kind of learning goes beyond factual knowledge or the acquisition of specific skills and is related to positive affect (Bateson and Martin 2013). Without denying the value of teacher-led activities and support (Siraj-Blatchford et al. 2002), the above research suggests that the foundational capacity to relate to oneself, others, and the world around us is literally built in everyday, self-initiated, in-between interactions and experiences that often involve risk. However, we know little about how children create these experiences in ECEC, making it difficult to recognize and value. In fact, research shows that ECEC staff often place excessive structural and rule-based limitations

on children's play, due to economic and/or parental pressure to limit exposure to risk (Little, Hansen Sandseter, and Wyver 2012).

## Methods and ethical considerations

To understand more about how holistic learning occurs during children's self-initiated outdoor play in Norwegian ECEC, we observed a group of 20 four-five-year-old children in a privately owned kindergarten during outside play. We observed children after their lunchtime, during the hour or so they played outside before afternoon snack. The time was decided upon in collaboration with the staff, as it was the time of day most children and staff were present and most routine play outdoors occurred.

We were three observers, two with a background in early childhood education and one a biologist with a background in middle school education. We observed approximately an hour of play over four non-consecutive days during the Autumn and Winter 2020. In total, we observed 10 h of playing using field notes and photography to gather data. The field work took place during the COVID epidemic which was mitigated at the kindergarten by the creation of smaller groups of cohorts and a playground with several areas sealed off to reduce contact between cohorts. Within this reduced area (approximately 700 m<sup>2</sup>), there were large Lego blocks available on a wooden deck (12 m<sup>2</sup>), a sand area with a wooden boat, climbing apparatus and wooden playhouse, a swing set and three wooden tables with benches. The landscape included a flat asphalt area and a grassy, sloping area, with the swing set on a small grassy height with surrounding shrubbery and a maple tree. There was no mandatory mask ordinance in place, and since neither the children nor the staff wore masks, we chose not to wear masks either.

We sought and received permission from the Norwegian center for research data to use photography and notetaking to collect data during children's outdoor play, so long as no recognizable features were included in the photographs. Another consideration was the permission from the children to observe them, which technically was granted by their parents, but that we sought from them as well. We asked the children if it was alright if we were there and explained to them that we were there to see how they played in kindergarten. We took care not to impose ourselves on their play without an invitation. Because we were trying to learn from children's own activities, we were mindful of our influence on the playground and how our presence necessarily changed what we would observe. For example, we began by offering the children vests with letters which we had intended to use to help us locate and observe the children in the class we had an agreement with. Upon being met with the energy and force of the children, we felt the vests were an imposition on their play and we abandoned the idea. However, the children had been informed that they would receive lettered vests, and some wanted them. Whoever wanted a vest and a letter-sticker, received one. Most children wanted a letter that was represented in their names. This initial change-of-plans helped us integrate into the group.

When observing as a team, we each observed different areas of the playground using a biosocial perspective on learning to guide our focus areas. Author one focused on what things children did things with, author two focused on how children used the things they were playing with and author three focused on the relationships between children-children and the children and adults. We took field notes and photographs, recording what

the children were doing and with what and whom, according to our focus areas. We also recorded events that made an impression on us that were outside of our focus area.

We transcribed our written notes and stored photographs onto a secured digital platform. We discussed and analyzed the material together in light of theories of play and learning that emphasized the biological and social aspects of play. We viewed each other's photographs together, to trigger our memories and compare observations. We discussed the concrete details of photographs and how they relate to biological and social theories about play and learning. We discussed from the perspectives of pedagogy and biology. Our varied observations ranged from children's emotional exchanges, scientific experimentation with materials, and physical exertions. We found commonalities amongst our findings and four categories within which our individual and common observations could be grouped: *Exploring with other species*; *Experimentation, imagination and creativity*; *Intense and novel physical experiences and challenges*; and *Navigating emotions, rules and relationships*. In the following section, we present our results before discussing them in light of a biosocial perspective on play.

## Results

Within a limited area with limited materials, we found that with a creative and imaginative attitude, children sought intense and novel physical experiences and interactions with each other, other species, and things, while also navigating rules, relationships, and their own and others' emotions. The strategies children used during play did not arise independent of each other or isolated from the other qualities and cannot be understood as 'types of play' but must be seen as examples of integrated aspects of children's holistic play. In other words, we observed that children engaged in physical, creative, imaginative play with things, other species, and with each other in emotionally charged interactions. The staff regularly 'counted' children to ensure all were present and were available for help when children asked for it. Otherwise, staff stayed out of children's business. In this section, we describe our results, organized into four categories. We also present findings relating to the rules that became apparent during observations.

### *Exploring with other species*

Although the available kindergarten playground had mostly asphalt and few naturally occurring species, children found species that they explored in different ways. A maple tree grew on the kindergarten's property. Though the children were not allowed to climb in it, the tree continues to provide opportunities for play and learning. The fallen leaves were used to throw in the air or to jump into and its seeds were explored, being used to stick onto their noses. Beneath the leaves, was one place the children found earthworms that they held and felt in their hands. The found earthworms were prized possessions, with several children asking to hold and look at them. After a while, the child who found the earthworm was concerned the worm wanted to go 'home', so she threw it behind the bushes where she had found it.

Near the kindergarten house, some children found harvesters (*Opiliones*), that they built a house of large Legos to and that they observed inside this house. They called

the harvesters ‘daddy long legs’ and speculated as to what they would like to eat, looking for ants they imagined the harvesters would enjoy.

### ***Experimentation, imagination and creativity***

We found that children engaged with each other, other species, and the objects they had at their disposal with a general attitude of experimentation, imagination, and creativity. For example, there was a rise in excitement level when a child came running out of the classroom with a ‘hoppilopp’ in his hand. The small, round rubber toy about the size of a half-dollar, could be turned inside out so they could jump. These poppers were twisted and put in various places such as on the fence, on the table, on the ground, and in water. The children had competitions about who made the popper jump the longest or to certain places. Some children used the hoppilopp to carry around a small piece of chalk that was used to draw or write on outdoor equipment and asphalt ground.

Some children took an interest in our writing notebooks and asked if they too could write. Author one replied positively and sat down on a bench. Children asked our (the researchers’) names and how to spell them, then asked how to spell other words before writing them down, such as ‘rain’, and ‘heart’.

The sandbox was also used for experimentation and exploratory play. We observed the children in late fall, when the nights were cold, and the water in the sandbox had frozen. Some children dug after hard lumps of sand they crushed between their fingers. Children also played witches, making ‘rat soup’ and other scary meals using the natural materials and play objects that had at hand, such as plastic bowls and plastic shovels, challenging their friends to taste the ‘scary’ meals.

In the middle of the playground, there was a wooden playhouse with decorative carvings. Many of the children ‘painted’ or drew on the playhouse with the colored chalks. Not only did the chalk color come onto the playhouse, but also children spread the chalk to clothes, hands, and tongues, staining their bodies, and wooden play structures.

Some of the children played creatively with outdoor LEGO construction pieces. They built figures with the boxes they had outside. The children described the figures as birds, and they pointed out the stomachs of the birds were. Some children tried to create symmetry when building these figures.

### ***Intense and novel physical experiences and challenges***

Children climbed on top of tables, swung on the swings as high as possible, and hopped from higher to lower surfaces, children held hands and spun around together, chased each other (an alternating ‘one’ chasing a group), and spent time discussing, arguing and compromising about plans for play, often increasing the challenge through escalating the play further (more speed, more aspects drawn into the play). Children experimented with their body positions in and around the swings, slowing down, speeding up, lying underneath the swings, standing up on the swings, and jumping off the swings while still swinging. Children climbed up a five-foot net-like climbing apparatus. When author one asked a child why she was climbing there, she replied ‘I climb high to get closer to the sky’.

### ***Navigating emotions, rules and relationships***

Throughout the time we observed, children navigated each other's and their own emotions and their relationships with each other and teachers. For example, a child sat by herself on a bench before approaching a teacher to tell her: 'you know what, she is saying, she says she only loves Beatrice and not me.' The teacher responded immediately, going to the children in the group nearby to speak with them. The child on the bench ran towards another child, then suddenly cried out cheerfully 'Sorry, sorry, Beatrice says she does love me too!'. Children took contact with teachers regarding these emotional difficulties that arose between them. Within the playgroups, there were constant negotiations about who would decide the next move in the play, who would decide what was allowed in the game they were playing and how to do what they had decided to do. After these discussions, we observed that they often reassured each other that they liked each other and wanted to play together.

Some children wanted to climb on the wooden playhouse but were not allowed. The children were not allowed to climb the maple tree that grew on the property either, or roll down the grassy hill, which had earth that was easy to dig at the bottom of it. According to the adult on duty during our observation at one time, like the playhouse, a child had fallen from a tree and hurt themselves, though the child did not sustain serious injury. Since that time, the leaders of the kindergarten decided it would no longer be allowed to climb trees in this kindergarten. This rule applies both in the kindergarten playground and on field trips into the city or forest. The earthy area at the bottom of a downward grassy slope was taped off as off limits. The teacher on duty explained that they weren't allowed because the slope could be dangerous in the wintertime, and in the fall, the children liked to dig up the earth in that area, which the staff did not think was a good idea. The teacher commented that the children liked to dig up the earth 'like little moles'.

### **Discussion**

We set out to observe how, with what and whom 4–5-year-old children play during self-initiated play outdoors in a Norwegian kindergarten. We found that children engaged in experimentation, sought out intense physical experiences, excitement, and challenges, and navigated their own and others' emotions and other relationship challenges independently, sometimes asking for help from staff and controlling when the help should desist. They also wrote in our notepads, using the opportunity to sound out our names and other words of interest to them. We also found that staff engaged in limiting children's opportunities to play through rules and physical structures, echoing earlier research (Little, Hansen Sandseter, and Wyver 2012). In the following, we discuss the results and challenges involved in children's opportunities to engage in self-initiated play within the goals and intentions of ECEC, including the limits of holistic learning through teacher-guided learning activities.

Our findings reveal a multiplicity of relationships and strategies children engage in through play. We observed how children created new situations constantly, engaging with different species, creating excitement and constant change. This constant change occurred despite constrictions both space-wise, material-wise, and regarding rules,



which for example hindered children from climbing trees or other structures not specifically built as climbing structures.

### ***Meeting other species with excitement, but little knowledge***

We found that children spent time looking for and engaging with other species, including plants and insects. Children's discovery of earthworms and harvesters allowed opportunities to be curiosity (Bjerknes, Wilhelmsen, and Foyn-Bruun 2023), and/or face fears (Sandseter and Kennair 2011), that may be transmitted through culture regarding insects and spiders. The children we observed were exploring in a Norwegian environment in which there were few poisonous creatures to be feared. However, another kind of knowledge was lacking, namely, how to treat the creatures with care. For example, the earthworms were thrown back into the bush they were found in, rather than placed. The children wanted the harvesters to eat, and therefore tried to feed them ants, unaware of what harvesters eat.

A combination of knowledge about the children's natural environment and the freedom to explore it could provide children with even richer experiences and encounters with other species. Would it be most beneficial for a teacher to teach about the animals' needs during the play or before? Would the involvement of a teacher in the children's explorations detract from the combination of imagination and challenge the children experienced in their own explorations with the other species? Self-initiated play builds self-awareness and resilience (Tovey 2007). If a teacher were to insert herself in the explorative play to inform the child about how to care for the other species the positive effect of independent exploration that play induces (Russ 2014) could be endangered. Treatment of animals is an ethical consideration that raises difficult questions as to who and what is most important to protect then and there.

However, holistic learning reaches beyond factual learning, which though 'invisible' is vital for human development (Lester and Russell 2008) and only achievable by children themselves. It may seem to a teacher that knowledge about species is important and thus always a subject relevant for spontaneous teaching (Hunter et al. 2020). It may be in the children's best interest for the teacher to resist teaching then and there, and through resisting, make a space for children's self-initiated learning. This kind of learning may not be immediately recognizable but is nonetheless vital. Throughout the often eight-hour days, children spend in kindergartens, it is perhaps the teachers' challenge to judge where an opportunity for teacher-guided learning arises and when children are best served through resisting teaching and making space for children's self-initiated learning.

### ***Learning 'more than' facts: building connections with the world***

From the perspective of a natural science educator, the exploratory play with the rubber 'poppers' (hoppilopps) gave the children a shared experience with energy and measuring. By taking turns giving their energy into the twist, the popper jumped. Beyond the exposure to scientific laws, children experienced the excitement of physical laws and how they can influence themselves and other things. The children added excitement and challenge to the play by competing. Here we can see how children use creating

challenge and uncertainty (Burghardt 2005) as a strategy that produces positive effect (Russ 2014). In the sandbox, children experienced first-hand how materials change form depending on the air temperature outside when they dug for hard clumps of sand. Though they may not have intellectually understood the connection, when they do learn the facts of the matter, the tactile memory of the clumps of sand will render the knowledge personally meaningful, establishing a connection between children and the world they live in (Lester and Russell 2008). From a holistic and biosocial learning perspective, this isn't only about learning facts about the physical world, but also being creative, becoming connected to the world (Lester and Russell 2008), and developing positive associations with their own agency and being alive (Russ 2014). Creating opportunities for children to enact agency is a primary goal of supporting and facilitating democracy through early childhood education (Kragh-Müller 2017).

What children learn through play may be drastically different from what educators suppose they *should* learn. For example, while educators may value the presence of a climbing apparatus for the physical opportunities it affords children, it would be hard to foresee the desire to climb in order to 'get closer to the sky'. This reflects the complexity of young children's holistic learning and contrasts what teacher-guided pedagogy can provide.

### ***Complexity, autonomy, and relationships***

The situations children engaged in involved many children without direct guidance from staff, except through the rules the children were familiar with regarding where they could play, how they should treat each other, and what they could do with the materials they had. During our observations, children contacted staff when their social relations broke down or when they wanted materials that were not available while staff took a passive role, and took contact when safety was threatened, or rules were broken. This finding echoes Chen et al.'s (2019) study that noted children initiated contact far more than adults initiated contact with children during outside play. During our observations, it was the children who controlled the degree to which staff were involved in their play. Adult/teacher passivity during outside play is often criticized and identified as a site of potential for more staff involvement and the expansion of children's learning through play (Hunter et al. 2020). From the perspective of holistic and biosocial learning, staff passivity facilitated children's agency and offered children opportunities to enact their right to participation and to develop agency. In this way, 'active' passivity is the performance of an *indirect pedagogy*. This method involves challenges however, for varied reasons, not all children feel capable of enacting their agency during their time in ECEC environments. We observed one child who struggled to participate in play with the other children. Unstructured play places some children at risk of not developing relationships and being part of the play (Kragh-Müller and Isbell 2010) and raises the question of how adults can take responsibility for children's well-being and learning without hindering children's self-initiated efforts. This places a demand on adults to be aware of some children's need for help that they may not feel capable of expressing or know how to express to adults. The outdoor play we observed both allowed for and required (but did not ensure) that children navigated their own emotions, their social worlds, the physical spaces, all the while acting from internal motivation (Broström 2017).

In the short amount of time and limited circumstances of the play we observed, we found high content in children's play, ranging from aesthetic exploration, emotional experiences of pleasure when the swinging gained speed and children reached high, or when a friend was told she was loved by her friend and a smile and glow grew on her face, or sadness, when children were ignored by others, or fear when the spinning each other around became too fierce. Children made contact with each other, teachers, worms, spiders, sand, leaves, chalk, dirt, wood, plastic, man-made toys and natural substances, as well as being exposed to fresh air, sunshine, rain, snow, and wind. The variety and intensity of stimulation children experienced during the 10 h we observed them, we argue, would be impossible for a pedagogue to orchestrate- and to ensure the experiences were meaningful for the children.

### ***Limiting children's learning during self-initiated play***

In our study, children sought out exciting experiences but were limited by kindergarten rules that seemed to respond to parental pressure and fears rather than pedagogic considerations, limited play materials, and the minimized area they had available to play. Unnecessary limitations are concerning considering the vital role excitement and varied kinds of stimulation and emotions play in the architecture of the brain development and children's development of relationships between other people and the environment (Bailey 1999).

Reasons for limiting space were organizational relating to COVID, but some areas were blocked off for other reasons. The downward slope with loose dirt at the bottom became a favorite place for children to dig. This was closed off because the digging was deemed destructive. The teacher's comment 'they're like moles' and the willingness to forbid digging in dirt may reflect a lack of appreciation for children's play behavior and exploration from an evolutionary perspective (Bailey 1999). The downward slope of the hill caused some children to roll down it in a way the staff also remarked was dangerous. When it comes to climbing, the rare occurrence of a child's minor injuries was enough to disallow climbing reportedly to appease the worries of parents. As the research from Little, Hansen Sandseter, and Wyver (2012) revealed, some safety rules and decisions satisfy economic or parental pressure, rather than children's developmental needs.

### **Conclusion**

This study contributes to knowledge regarding how children learn holistically during self-initiated, outdoor play in Nordic kindergartens and how indirect pedagogy can facilitate holistic learning. With little interference from educators beyond the rules, facilitation of the holistic learning environment, and being available, our observations show that children who play take an active role through exploring and engaging with the physical world, peers, other species, various materials, elements, and sometimes also the teachers. We also found that children navigated around rules that limited the areas they could play and that the rules were not necessarily enforced with the aim of enhancing children's opportunities to learn but to minimize the chance of minor accidents.

These results show that children navigate staff-imposed limitations during self-initiated outdoor play with strategies such as creating excitement, challenge, and

uncertain situations. These strategies of self-initiated play contribute to holistic learning and support vital biosocial learning processes (Lester and Russell 2010; Youdell and Lindley 2019). Our findings have implications for recognizing and protecting young children's opportunities for exercising their agency as self-guided holistic learners.

## Disclosure statement

No potential conflict of interest was reported by the authors.

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