1 The Nature of the Imagination

Definitions of the imagination often have a normative component. Idle thoughts about the not here and the not now, the kinds of fleeting thoughts that occur to us when daydreaming, are not generally seen as worthy products of the imagination. Only richer, more active, and creative fantasies are seen as genuinely imaginative. However, because I want to trace the imagination from its origins in early childhood, I propose to be more inclusive – to suppress any urge to exclude transient or pedestrian episodes of make-believe in favor of creative or sustained flights of fantasy. As we will see, this inclusive strategy is helpful because it encourages an analysis of overlooked but important aspects of the imagination.

Definitions of the imagination are also likely to imply an engagement with unrealized possibilities rather than known actualities. However, consider what happens when children listen to a historical narrative. Provided the narrative is an accurate account, the events described, whether in the time of the Romans, the Vikings, or the Civil War, have actually happened. Yet children listening to that narrative cannot draw on any memory of the events in question. To follow the narrative, they need to construct their own mental representation of what took place, and that constructive process can reasonably be called an act of the imagination. More generally, this example underlines the fact that children, and adults too, deploy their imagination not only when they conjure up fantastical possibilities that may never be realized but also when they are told about actual events that have already taken place. By implication, an inclusive strategy is helpful because it invites us to think about an aspect of the imagination that is pervasive but neglected, notably our ability to contemplate in our mind's eye not just fictional or made-up events but also real events that we have not actually observed. Vygotsky made this important but neglected point almost a century ago: "When we read a newspaper and find out about a thousand events that we have not directly witnessed, when a child studies geography or history, when we merely learn what has been happening to another person by reading a letter from him – in all these cases our imagination serves our experience" (Vygotsky, 2004, p. 17).

In summary, I will argue that an act of the imagination takes place when children think about events or entities that are not observably present. Such events or entities may have already happened, they may be imminent but as yet unrealized, or they may be fantastical and unlikely to ever materialize. What unites them as targets of the imagination is that the child contemplating them is not simply drawing on direct perception or retrieving the memory of an earlier encounter but is constructing a novel representation. Admittedly,

that constructive process can and often does draw heavily on memory. For example, what children envisage about historical or future events is likely to draw on their memory of the past, but still there is an important conceptual difference between the simple retrieval of an event that one actually observed and imagining an event that one never witnessed, even if children sometimes have difficulty in discriminating the one from the other, as discussed in Section 6.

Although I will not strive to make a sharp distinction between allegedly creative and more humdrum acts of the imagination, I will have frequent recourse to a related distinction. Sometimes, children are in the driver's seat: when they engage in pretend play with props, create an imaginary friend, or invent a story, it is they who are taking the initiative in generating the imaginary materials. By contrast, when they are told about the Tooth Fairy or listen to a narrative from a history book or from the Bible, the target of their imagination has been specified externally by a parent, a teacher, or a text. As we will see, what children are prone to generate for themselves is likely to be different from what they contemplate in their imagination with external support. In particular, the latter will often be more fantastical and reality defying. That said, and despite the validity of this distinction, the imaginary entities that children first hear about in a story, or see on a screen, may eventually come to inspire their own imaginative activities down the road. The child who is presented with stories about rabbits in the garden is likely to generate a different imaginary world from the child who is presented with cartoons about superheroes in outer space.

In the sections that follow, I organize the materials with an eye to development. I start by describing one of the very earliest manifestations of the imagination – already evident among toddlers – notably the emergence of pretend play with props (Section 2) as well as early role-play (Section 3). I then go on to describe capacities that emerge in early childhood: the ability to imagine what the future might bring (Section 4) as well as the ability to imagine possibilities that could have happened – but never actually came to pass (Section 5). I then discuss how far children's imagination infuses their claims about what actually happened (Section 6). Granted the importance of stories in children's lives, I review the ways in which children process narratives, become absorbed in the worlds that they describe, and sometimes construct their own imaginary or fictional worlds (Section 7). Finally, I review children's inventiveness, focusing on two central human skills – the ability to invent and make tools and the ability to draw (Section 8). In Section 9, I review the main themes of this Element.

2 Pretend Play

Most typically developing children have started to engage in pretend play by the time they pass their second birthday. For example, they pretend to feed a doll by holding a cup to its lips, give it a pretend bath in a cardboard box, or with the help of suitable props, act out some workaday activity, such as cleaning or cooking. The emergence of this type of playful reenactment of familiar routines seems to be unique to human children. Admittedly, there have been anecdotal accounts of very occasional, prop-based pretending by chimpanzees, both domesticated and wild (Suddendorf & Whiten, 2001), but among young, non-human primates, there is no evidence for the systematic, pretend reenactment of familiar routines that is seen so regularly in human toddlers.

2.1 Pretending across Cultures

Pretend play emerges across a wide range of cultures and does not seem to depend on systematic support or instruction from adults (Callaghan et al., 2011; Harris & Jalloul, 2013). In some cultures, adults are prone to offer toys as props or join in with children's pretend play, but in other cultures they provide little scaffolding (Bornstein, 2007; Gaskins, 2000). Yet, in either case, we see approximately the same capacity for pretend play emerging. By implication, pretend play reflects a universal, species-specific disposition to imagine activities and events that are not actually taking place but can be represented with the help of suitable actions and props. One might be tempted to conclude that such pretend play is simply a reflection of children's capacity for relatively accurate imitation (Harris, 2012, chapter 3). Perhaps, children watch a parent cooking or digging and reproduce those actions as best as they can with whatever props are to hand. However, key aspects of pretend play involve more than simple imitation. The child playing with a doll likely conjures up, in their imagination, the juice in the proffered cup or the water in the prepared bath.

Strong evidence for such imaginative interpolations comes from collaborative pretend play. In the course of the third year, toddlers not only produce prop-based, pretend play themselves, they can also join in with a play partner and make sense of what they are up to (Harris & Kavanaugh, 1993). For example, if they see a partner pick up an empty teapot and mischievously "pour" pretend tea over a toy animal, they realize what will have happened as a result. They appropriately describe the animal victim as "wet" and "dry" it with a tissue. It is easy to underestimate the thinking that is required to make this type of collaborative engagement possible, but a moment's reflection reveals the complexity of what is going on. When the partner lifts the empty teapot and tilts it in a pretend pouring gesture, no liquid actually comes out.

So, to describe the animal victim as "wet" or to subsequently "dry" it, the child needs to imagine liquid coming out of the teapot spout and dousing the animal underneath. In that sense, the child's participation goes well beyond simple imitation. To engage in the relevant acts of the imagination, tailored to a partner's initiatives, the child must be guided or constrained by real-world knowledge, such as the fact that teapots typically contain liquid, that a liquid will emerge if it is tilted, that liquids fall downward rather than upward or sideways, and so forth. Indeed, although it is tempting to think that children's pretend play is fanciful and allows them to escape from humdrum reality, it is routinely guided by their knowledge of the way that everyday reality works (Harris, 2021).

In fact, evidence for "escapist" pretend play in which children conjure up an exotic alternative to the real world is sparse. Young children mostly recreate the everyday world that they themselves are familiar with – its scripts and regularities. They reenact domestic routines such as eating, drinking, cooking, and cleaning rather than visits to the moon or the ocean floor. Research in traditional cultures underlines how children are keen observers of the everyday activities they see around them. Particularly in cultures where children have plenty of opportunities to watch adults at work, they are likely to engage in "work-themed" pretense: pretend reenactments of the kinds of tasks they see nearby adults engaged in. Indeed, in a study of play among Ngandu subsistence farmers and Aka foragers in the Central African Republic, Boyette (2016) found that the pretend reenactment of subsistence activities, such as pretending to cook inedible leaves or fetching make-believe water in small containers, was the dominant mode of pretend play in each setting.

Lew-Levy et al. (2020) offered additional evidence for such workaday pretense in two hunter-gatherer groups: Tanzanian Hazda and Congolese BaYaka. Sustained observation of individual children (ranging from three to eighteen years) confirmed that play took up a considerable proportion of their daily time budgets: between a fifth and a quarter. Moreover, a good deal of their playtime was devoted to pretend play: 41 percent among the Hazda and 31 percent among the BaYaka. Echoing the findings of Boyette (2016), pretend play was dominated by workaday themes such as playing house, play hunting, play foraging, or doll play. Moreover, reflecting the division of labor in the adult community, girls in both communities spent more time than boys in pretend housekeeping, whereas boys spent more time than girls in pretend hunting. Pretend play that did not reflect work themes (e.g., pretending to sleep, pretending to ride in cars, pretending to be animals, imitating adult social interaction, or imitating religious ceremonies) did occur, but it was considerably less frequent than work-themed pretense.

A study conducted with five different cultural groups in Brazil reported similar results (Gosso et al., 2007). The themes that children enacted were mainly drawn from everyday life; very few (<5 percent) involved fantasy. Moreover, when the characters that children invented or enacted were analyzed, the majority (approaching 90 percent) was based on real people or animals; few were fantastic characters such as a vampire.

2.2 Pretending in Preschool

Early childhood educators have long been interested in the possibility that pretend play, especially social pretend play, might provide a cognitive boost for young children. This interest is both theoretical and practical. From a theoretical perspective, Vygotsky (1978) claimed that when engaged in pretend play, young children are induced to be well regulated in the sense that they strive to honor the rules and roles of the make-believe scenario that they are enacting. Arguably then, frequent pretend play would lead to improvements in self-control, as indexed by measures of executive function.

From a practical perspective, encouraging young children to engage in pretend is a relatively easy task. They can be prompted with themes and props. Indeed, well-designed intervention studies have shown that when adults offer support, especially via a combination of play materials (e.g., firefighters' helmets, a medical kit), verbal prompting (e.g., "Let's play firefighters"), and modeling, preschoolers are likely to engage in higher-quality pretend play than they do without such support. They are more likely to act continuously in roles (e.g., as a firefighter or doctor), to communicate their play plans, and to engage in connected episodes of pretense (Kalkusch et al., 2021).

If such simple interventions aimed at boosting social pretend play were to have notable cognitive benefits, that would be welcome news because they can be easily introduced into a range of classroom settings at low cost. However, much of the evidence indicating that pretend play delivers cognitive benefits is suggestive rather than solid, given a variety of design issues (Lillard et al., 2013). I describe some recent exemplary studies that continue to offer tantalizing rather than robust evidence for the benefits of pretend play interventions.

White et al. (2021) observed Spanish-speaking preschoolers in their classrooms over a year-long period. Children were scored for the frequency with which they engaged in social pretense in concert with other children as well as solitary pretense. Children's performance on the day-night task, a well-established measure of executive function, was assessed twice, once in the fall and once in the following spring, making it possible to determine what factors predicted the degree to which children's scores improved. The extent to

which children had engaged in social pretense proved to be a helpful predictor of improvement, whereas the degree to which they had engaged in solitary pretense did not. Children's involvement in nonpretense social play was also unrelated to improvement on the executive function measure. By implication, there was something about the combination of (i) playing with other children and (ii) engaging in pretense that was a predictor of executive function gain, and it is tempting to infer that this combination was causally responsible for improvements in executive function. However, as usual, it is risky to draw causal conclusions from correlational data. After all, it is possible that some third factor, for example, being attentive to rapidly changing cues, facilitated children's participation in the back and forth of social pretense as well as their performance on the day-night task.

More persuasive evidence of a causal impact of pretend play on self-control or executive function could be provided by controlled intervention studies in which some children but not others are prompted to engage in pretend play, especially social pretend play with a social component. In one study of this type, Thibodeau et al. (2016) looked at the impact of an intervention with four-year-olds from predominantly middle-income families. Teachers worked with small groups of children for a total of just over six hours spread over a five-week period, encouraging them to engage in (i) pretend play, (ii) nonpretend activities such as coloring or ball games, or (iii) normal classroom activities. In anticipation of improvements in executive function, children were assessed before and after the intervention on three different aspects of executive function. None of the three groups displayed any significant improvement on a measure of attention shifting or on the day-night task. However, children in the pretend play group, unlike children in the other two groups, showed a modest gain on a measure of working memory, as indexed by digit span. Moreover, that gain was more evident among those children in the pretend play group who consistently engaged in more exotic pretending (e.g., pretending to be a fairy) as compared with more prosaic pretending (e.g., pretending to be a mom). By implication, the discipline of enacting a less familiar and more demanding scenario was especially likely to boost concentration and memory, as indexed by the digit span task. That said, this difference emerged only in a post hoc analysis of individual differences; the pretend play intervention straddled both exotic and prosaic scenarios so that we do not have experimental evidence for the difference between the two types of pretense.

In another intervention study, Goldstein and Lerner (2018) compared three groups of four- to five-year-olds from low-income families. Guided by an adult, one group engaged in sociodramatic pretend play, a second engaged in construction play with blocks, and a third listened to stories and answered questions

about them. All three groups received three 20-minute intervention sessions per week for a total of eight weeks (i.e., eight hours in total). Before and after the intervention, children received various tests of socioemotional development (theory-of-mind understanding, sharing stickers with another child, comforting an adult in pain, negative reactions to an adult's pain, spontaneously helping an adult in evident need of practical assistance, and verbal reports of empathic reactions to another's distress). Intervention effects were found for two of these six measures. As compared with children in the other two control groups, children in the pretend play group showed fewer negative reactions to an adult's pain and reported less empathic reactions to another's distress.

Summarizing across these two intervention studies, it remains unclear exactly what effects such interventions can have. Despite relatively sustained and high dosages of pretend play (i.e., a total of six to eight hours across several weeks), the effects in each study were limited rather than pervasive. They emerged for only one of the three executive function measures in the study by Thibodeau et al. (2016) and for only two of the six socioemotional measures in the study by Goldstein and Lerner (2018). Moreover, current theorizing provides no straightforward explanation of why some effects were found whereas others were not. For example, it is not clear why the pretend play intervention *reduced* children's empathic reactions to another's distress – even if post hoc explanations might be offered. Finally, it is worth remembering that millions of children grow up in traditional cultures without the alleged benefits of adult-guided pretend play – they are often left to their own devices or left with older children who are likely to scaffold the pretend play of younger children. What to conclude then about such intervention research? My own recommendation would be to switch to less lengthy and more targeted experimental studies in which the primary goal is to pinpoint and analyze the complicated processes that underlie pretend play. Once that goal is achieved, we may be better placed to seek and demonstrate the potential educational benefits of large-scale, sustained pretend play interventions. I describe examples of such targeted experimental studies in the context of role-play – as discussed Section 3.

2.3 Conclusions

Most typically developing children have started to engage in pretend play by their second birthday, often doing so with minimal guidance or prompting from caregivers. When children engage in pretend play, they readily draw on and interpolate their knowledge of everyday causal regularities, especially when making sense of a partner's pretend enactments. For example, they imagine the pouring or drinking of a pretend liquid. In that sense, early pretend play goes

beyond simple imitation. Nevertheless, in choosing pretend themes, young children often draw on their observation of the adult activities they have seen, frequently engaging in work-themed pretense. In both these respects, children's pretend play is inspired by their observation and grasp of everyday reality. More fantastical creations and enactments are rare.

Research in early childhood education often aims to show the cognitive benefits of play, especially pretend play. Although observational research points to such benefits, we lack cumulative evidence from successful, well-designed interventions.

3 Role-Play

In one important respect, children clearly defy reality in the course of their pretend play. They often set their own identity aside and imagine what it would be like to be someone else. Such role-play or perspective-taking comes in a variety of forms, but these forms can be distilled into three basic types depending on the particular pretend vehicle that children deploy. First, children sometimes impersonate or act as if they themselves were another person or an animal. For example, they might temporarily, and sometimes recurrently, pretend to be a dog, a mother, or a train driver. Second, children sometimes invest a prop, typically, although not always, a doll or toy, with person-like qualities, for example a name or at least a distinctive identity and characteristics. Third, children can conjure up, out of thin air, so to speak, another person or creature and engage with them, as if they were actually present, despite their evident invisibility (Harris, 2000).

Across these different vehicles for their imagination – the self, a prop, or nothing at all – children, from their second birthday upward, typically endow the particular being that they imagine with various psychological properties – thoughts, feelings, preferences, perceptions, knowledge, all of which provide a basis for having an interpersonal connection to the being in question. Many of these role-playing episodes are fleeting. For example, the child animates a lifeless doll, a stuffed animal, or a toy giraffe with the capacities and needs appropriate to a particular episode of pretend play, such as hunger or thirst, fear or anger, feeling too hot or too cold, or a need to be cuddled. These pretend attributions do not outlive the make-believe episode that is being enacted. Sometimes, however, and increasingly in the course of the preschool years, children invoke a particular imaginary being on a regular basis, repeatedly attributing to him, her, or it the same name, identity, and characteristics. At this point, we are witnessing the emergence of what is commonly known as an imaginary companion.

For more than a century, psychologists have gone back and forth about the definition, scope, and ubiquity of this intriguing aspect of the child's imagination. My own preference is (again) to be inclusive rather than exclusive. For example, even if the phenomenon looks very different to an external observer depending on the particular vehicle that a child deploys to enact the pretense (i.e., whether it is the self, a doll, or a purely imaginary being conjured out of nothing at all), it is plausible, from the child's own perspective, and indeed in terms of the underlying mechanism, that these various forms of pretend play belong to the same psychological family. After all, they all involve a specific act of the imagination, notably the creation of an imaginary being endowed with psychological attributes. Similarly, although from the observer's perspective, the child who engages in transient role-play with a doll may look very different from the child who insists on the existence of a totally invisible companion for months on end, it is unlikely that there is a fundamental psychological discontinuity between the two. In both instances, the child is imagining the existence, agency, and perspective of another being, someone different from the self. The only difference is one of temporal span or, more precisely, the degree to which the child reverts repeatedly in their imagination to the same persona.

Indeed, Vostrovsky (1895), who was the first psychologist to call attention to the fact that some pretend beings become "a part of the environment of the child for a greater length of time – sometimes for years," made the equally important observation that children also conjure up make-believe persons in a transient fashion. In the context of pretend play, they readily populate a pretend house, school, or bus with the appropriate occupants.

In summary, my proposal is that young children have a natural disposition to pretend to be someone they are not. Whether they do so briefly or repeatedly, with the help of a prop or without, the basic psychological maneuver is similar, namely, to imagine the world from the perspective of that other being. That said, there are changes in the kinds of attributions that toddlers make, with younger toddlers prone to treat the other as a sentient but passive recipient of their ministrations and older children more likely to endow the other with independent agency and increasingly with a range of mental states, including sensations, feelings, thoughts, and plans (Wolf et al., 1984).

3.1 The Frequency of Imaginary Companions

With these definitional issues laid out, it is worth providing some facts and figures about the frequency of imaginary companions as conventionally defined (i.e., those companions that persist over weeks or months). The work of Taylor et al. (2004) is especially helpful in this regard. Two notable conclusions have

emerged from her sustained research program. First, particularly if we adopt a relatively inclusive definition, the creation of an imaginary companion is not confined to a handful of especially imaginative children. Among US children, approximately two-thirds have at least one imaginary companion – and sometimes more – at some point in early childhood (i.e., from approximately three to eight years of age), whereas the remaining children never create one throughout that same period. It turns out that having an imaginary companion in the course of early childhood is not so exceptional.

Is the creation of such an enduring companion connected to a particular personality type or ability? First, we may say, fairly unequivocally, in light of the research by Taylor and her colleagues, that there is no evidence that their creation indexes an emotional disturbance or pathology. The very prevalence of their creation – by all sorts of children – speaks against any such connection. However, there is some evidence, tantalizing rather than completely solid, that children with imaginary companions are somewhat better at "mentalizing," that is, better at thinking about and identifying mental states (Harris, 2005). Such a connection is not implausible – after all, as we have seen, the creation of an imaginary companion typically calls for an ability to think about and attribute mental states to that companion.

3.2 Encouraging Role-Play

Given the possible connection between having an imaginary companion and mentalizing, it is tempting to think that prompting children to engage in more role-play, or more elaborate role-play, could benefit their social cognition and increase their insight into mental states. Indeed, a responsive adult armed with ideas and props can help children to explore pretend scenarios that they might not have generated for themselves. For example, in a longitudinal study, Slade (1987) filmed children from twenty to twenty-eight months as they played with various toys and props. The length of pretend bouts and their sophistication were greater when mothers were available as play partners rather than physically present but engaged in conversation with the experimenter. Moreover, mothers were especially likely to boost their child's pretend if they actively participated in the pretend episodes themselves rather than simply offering a verbal commentary.

Similarly, when preschool teachers encouraged pretend role-play by suggesting themes and providing props, young children's pretend play was richer than it would ordinarily be (Kalkusch et al., 2021). Once that external support was withdrawn, however, children displayed little evidence of any longer-term benefit from the intervention (Perren et al., 2021). They may well have enjoyed