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The wolf was only feeling hungry: emotional understanding and embodied cognition through dramatic play

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ABSTRACT

The aim of this study is to explore how children bring together motor processes, language and perception when embodying emotional states (Condition 1) versus factual events (Condition 2) through the story characters of ‘Little Red Riding Hood’. Children aged 3–4 years ($N = 33$) were observed while enacting each story-character through adult-initiated sessions. Findings showed that when children embodied the characters with emotional implications, they spent more time, they indicated higher frequencies of motor skills (criteria adapted from Castañer et al. [2009. “Identifying and Analyzing Motor Skill Responses in Body Movement and Dance.” *Behavior Research Methods* 41 (3): 857–867]) and they were more likely to use emotions in their discussions. Such findings have implications for practice.

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Introduction

Dramatising stories is valuable for young children, as ‘dramatic play produces documented cognitive, social and emotional benefits’ (Cople and Bredekamp 2009, 15). Through dramatic play, children can easily recreate images and ideas, conceptualise representations and translate them into action. Vygotsky (1978) considers dramatic play as a means to develop general representations, skills and abstract transformations of objects and roles. Indeed, drama has been used in early childhood classrooms in many forms and contexts for a long time. Numerous studies highlight the benefits of dramatic play in children’s development of literacy skills, symbolic representations, emotional regulation, social interactions, communication, collaboration and imagination (i.e. Curenton 2006; Paley 2005; Nicolopoulou and Richner 2007; Boyle and Charles 2010). However, there is limited research in exploring the connection between dramatic play, embodied cognition and perspective-taking.

There are many terms in the literature related to dramatic play (Meacham et al. 2013); amongst them are pretend play, imaginative play, fantasy play, make-believe play and role-play. In the current study, we consider dramatic play as the type of play where the child acts out or impersonates a character using the self as the vehicle (Harris 2000). In precise, we explore how children use their selves as vehicles to enact story characters in cases where there is an emphasis on emotional dilemmas in comparison to factual events. By acting out

characters through stories, children are given the space and opportunity to develop personal understandings and move from the surface and literal reading of the story to deeper understandings of aspects related to the story (Adomat 2012).

Through enactment, children face and solve problems, regulate emotions, adopt new perspectives, conquer fears and practice self-regulation (Elias and Berk 2002). Motivation, taking another's point of view, character development and sequencing (Galda 2005), as well as make-belief transformations of objects (Rowe 1998) and roles take place. Role-play invites children to attribute motives and intent to characters while balancing the real world and the world of fantasy (Kravtsov and Kravtsova 2010). During this process, children experience others' feelings and inner traits besides problem solving and personalised interpretations (Adomat 2012). Sociodramatic play increases opportunities for peer interaction and collaboration, meaning making and fosters social and emotional development.

Empathy and emotional recognition (Widen and Russell 2008), as part of social cognition, emerge early in life and are largely dependent upon positive forms of early social experience (Carpendale and Lewis 2006). Taking the perspective of the other facilitates communication and interaction. Stories and drama have been found to be effective means of promoting children's empathic perception (Karniol 2012). For instance, Nicolopoulou and Richner (2007) found in their study that there is a developmental pattern in children's character representation and Theory of Mind. Children, in their narrative stories, were found at the age of three to present actors based on their externally observable actions and characteristics. At the age of four, children were able to present characters as agents with psychological capacities who see, feel, communicate and react emotionally or physically and at the age of five children were able to portray characters' representational beliefs, desires, moods and intentions in more detail. In the same direction, Martinez and Roser (2005) agree that younger children focus on the external traits of characters when discussing stories, whereas older children have a stronger understanding of characters' inner traits and motivation.

This study aims to investigate the ways through which children express in dramatic play and enactment the emotional and factual elements of the story-characters of Little Red Riding Hood (LRRH). Drawing on aspects of embodied cognition and motor skills, this study explores how children use bodily action and language to represent and understand story characters; their feelings, their dilemmas and the situation in which they are. The theoretical perspective taken is that the body plays a central role in shaping human interactions and experience *in* the world resulting in the understanding *of* the world (Johnson 2007). Actions are central to the emergence of representations and the interaction between the environment and the motor system influences the cognitive behaviours (Gabbard 2015) and perceptions. As such, dramatic play is a demonstration of embodied cognition as children translate into action the conceptualisations and representations created through stories. Thus, this study explores children's motor and linguistic skills when enacting story characters with and without emotional implications. Two research questions are addressed: Do children embody in different ways the story characters when they face emotional dilemmas versus factual dilemmas? Which are the key characteristics of motor and linguistic expression that children engage with when they enact emotional compared to factual events of a story?

Embodied cognition, bodily movements and emotions

Embodied research has primarily focused on adult cognition (Wellsby and Pexman 2014). Thus, over the last decades there have been studies examining the aspects of embodied cognition in child development, under the basic principle that the mind is embedded in the body (Rivière 2014). Under this approach, perception, action and cognition are strongly linked and sensorimotor experiences are seen as the basis for knowledge and cognitive representations (Lozada and Carro 2016). In other words, the world is 'brought to life' by concrete handling and movement (Varela, Thompson, and Rosch 1991) and children are active agents who through their actions embody, transform, feel and experience various situations. As such, cognitive processes are deeply grounded in bodily interactions with the environment. The motor system is seen as highly contributing to high-levels of cognitive processing and the body is always considered as an acting body (Borghini and Cimatti 2010; Gabbard 2015). Bodily activity enhances cognitive activity and vice versa, while the brain, body and world are interconnected through dynamic interactions.

Infants are embodied learners and through sensorimotor information they discover the world around them and develop their representational systems (Laakso 2011; Meltzoff and Moore 1999). Traditionally, Piaget (1952) proposed how body actions, starting with reflexes during infancy, and environmental experience are incorporated into pre-existing and developing schemas. Hence, sensorimotor experiences enhance learning and sense-based understanding (Kiefer and Trumpp 2012). The sensorimotor experiences are proposed to be continuous during childhood (Thelen 2008) and provide opportunities for learning, understanding and acting. Antonucci and Alt (2011) propose that they may become more refined and flexible over time; thus, the interlinkage of action and perception is lifelong and progressive.

Embodied movements provide a bridge between action and abstract thought through a reciprocal connection. Thus, embodied movements are linked to gestures, posture and motor skills. According to Goldin-Meadow and Beilock (2010), gestures can both represent underlying thinking processes as well as can change already existing thoughts in children. They play a key role in emotional development as they provide cues and necessary information. Similarly, Mondloch (2012) found that children's perceptions of emotional facial displays are influenced by contextual information, including body posture, hand gestures and tone of voice. She found that for 8-year olds context effects and, in particular, body posture have a strong impact when two emotions are similar (i.e. fear and sadness) compared to when the emotions are dissimilar (i.e. happiness and sadness). Even before the age of two, it has been found that infants use explicit cues like eye gaze and pointing while processing others' actions and emotions (Deák, Flom, and Pick 2000; Gräfenhain et al. 2009).

In embodied cognition, when emotions and feelings are involved the model of embodied affectivity is proposed (Fulford et al. 2013). Bodily resonance is part of a circular interaction amongst the affective qualities or affordances of the environment, how our body is moved (affection) and how our body will move/respond (e-motion) (Fuchs and Koch 2014). The body is the medium of emotional perception and expression and in other words, the 'sounding-board' in which every emotion reverberates (James 1884). Then, given the experience, various gestures, movements, postures and sensations get activated. These, in turn, inform concepts and representations. In this process, the context as

well as the body play a key role in internalising and externalising experiences and emotions.

Emotional recognition in young children

Emotional recognition and empathy are prosocial skills that are fundamental in communicating and relating to others within our wider environment. The ability to recognise various displays of emotion is an important skill that starts from early on in life (Mondloch 2012). Emotions are experienced through our bodies, perceptions and actions. For example, in a dangerous situation, we experience fear through our body reaction (raised heart beat or widely open eyes), through our understanding of why the situation is dangerous and our urge to take action and either flee or hide (Sheets-Johnstone 1999). Emotions provide a basic orientation in prioritising what matters to us, they give meaning and scope to diverse situations, they provoke action and serve a communicative function in social life (Fuchs and Koch 2014).

Research has shown that children perceive and understand emotions at the level of valence by the age of two. Young children can categorise 'happiness' as separate from the negatively valenced emotions of 'sadness, fear and anger' (Russell and Widen 2002; Widen and Russell 2008; Wang, Liu, and Su 2014). Furthermore, 3-year olds have been found able to identify basic facial expressions accurately (Székely et al. 2011). Fuchs and Koch (2014) provide findings from a number of studies on the embodiment of emotions, indicating that emotion-specific bodily expressions are produced when individuals experience the associated emotions and thus specific behaviours are motivated. Gao and Maurer (2010) found that by five years of age, children are nearly adult-like for happy expressions whereas their sensitivity to other expressions, like surprise, disgust and fear continue to improve after the age of five.

Social cognition and behaviour is also influenced by empathy. Empathy has to do with matching the emotional state of another (Goldstein and Winner 2012). This ability to understand others' perspectives and emotions is integral for successfully identifying with another's experience. Empathy in early childhood has been found to play a key part in facilitating the internalisation of rules, prosocial and altruistic behaviours, social competence and relationship quality (McDonald and Messinger 2011). Being able to take the perspective of someone's feelings defines relationships, communication and wider social understanding.

Materials and methods

The study took place in the north-west of England and participants were children aged 3–4 years ($N = 33$, $m = 40$ months). Informed consent was given by each parent/guardian and children orally agreed to take part in the study. An access letter was signed by the nursery and the researchers carefully addressed any ethical implications (BERA 2011; Bertram et al. 2016). A mixed methods approach was used based on observations of four sessions per condition, where each time a story-character from the story of LRRH was enacted. LRRH has been used in previous research on children's attribution of emotion (Bradmetz and Schneider 1999; Ronfard and Harris 2014) and the four characters of the story: LRRH, grandma, the woodcutter and the wolf were approached separately.

During the four sessions, children were allocated randomly to one of the two Conditions. There were four groups of children, two of them participated in the morning and two of them in the afternoon. The make-up of the groups of children were similar and represented similarly in gender. In Condition 1, groups a and c enacted for each story character *empathic* dilemmas and in Condition 2, groups b and d enacted *non-empathic* dilemmas (Table 1). So, each group of children experienced the drama sessions of LRRH under one Condition (either the empathic or the non-empathic) according to a between-sample design. The between-group sampling, a common design used in Social Science fields (Allen 2017) was used so that children experiencing the empathic dilemmas (Condition 1) could be compared to children experiencing the non-empathic dilemmas (Condition 2). The two conditions allowed the opportunity to explore how each group of children embodied the story-characters' dilemmas and whether there were any similarities or differences.

The empathic dilemmas (Condition 1) would address how the character felt at different parts of the story and the non-empathic dilemmas (Condition 2) would be based on factual or informative aspects of the story. For example, 'how do we feel [LRRH] when we meet the wolf in the forest?' (empathic dilemma) and 'what tea shall we [grandmas] prepare?' (non-empathic dilemma).

In both conditions, there was a drama specialist, recorded as J, who facilitated the sessions. Previous research has shown that adult-led dramatic play has positive effects in enhancing children's comprehension skills (Pellegrini and Galda 1982; Williamson and Silvern 1992). Children formed groups with their peer classmates and the drama sessions were incorporated in their daily routines as part of their programme, in order to eliminate any disruptions. The number of children who formed groups depended on the number of children who were present in each session. There was a variance of 6–10 children each time and there was a mixture of gender as there would be in their usual daily activities. Each pedagogic session was structured under three phases and lasted around 30 min (Table 1).

Phase 1 was the read-aloud of the story and phase 2 was the enactment of the story through the perspective of one character per session; namely, session 1: LRRH, session 2: grandma, session 3: woodcutter and session 4: wolf. The order of the story-character enactment followed the order of their appearance in the story. During phase 2, the facilitator would encourage the narration and acting out of the story by addressing for each character four critical moments/dilemmas (Table 2). In phase 3, the children and the facilitator would discuss and reconsider aspects of the story through discussion and free play with figurines of the story-characters.

Children were video-recorded and aspects of their discourse and movement activity were used for further analysis. In particular, criteria adapted from the observational instrument of motor skills (OSMOS) (Castañer et al. 2009) and linguistic references to emotions were examined. The OSMOS has been standardised and used with both adults and

Table 1. Synopsis of the research design per session/story character.

Condition 1 (empathic dilemmas) Example: how are we feeling when we see LRRH [wolf]?	Condition 2 (non-empathic dilemmas) Example: what colour flowers we are picking [LRRH]?
Phase 1: read-aloud of the story Phase 2: acting out Phase 3: debriefing/discussion—free play with props/figures	

Table 2. The critical moments of each story character.

Character	Key phases/actions
LRRH	<ol style="list-style-type: none"> (1) Leaving home and going to the woods (2) Meeting the wolf and picking flowers (3) Going to grandma's and discovering the wolf (4) Hiding under the bed and un hiding from the bed
Grandma	<ol style="list-style-type: none"> (1) Feeling ill at home (2) Seeing the wolf and hiding under the bed (3) Pulling LRRH under the bed (4) Seeing the woodcutter and un hiding from the bed
Woodcutter	<ol style="list-style-type: none"> (1) Cutting wood in the forest (2) Going for a walk and hearing noises from grandma's house (3) Entering grandma's house and shooing the wolf (4) Having tea
Wolf	<ol style="list-style-type: none"> (1) In the woods meeting LRRH (2) Going to grandma's and wearing her clothes (3) Interacting with LRRH (4) Jumping out of the bed and leaving the house

children during dance, sports and other physical activities involving natural study contexts. The criteria used were based on locomotion (considered as an innate rhythmic motor act) and the body–space relationship (considered as the way and position of the body or parts of the body in space). In order to ensure the trustworthiness of the data, both the researchers scrutinised the video recordings separately and repetitively in order to ensure that the interpretations of the observations were commonly grounded in the data (Berg 2009).

Findings

There were 480 min of video recordings and the unit of analysis was the group of children. Phases 2 (acting out) and 3 (discussion/free play), in both empathic and non-empathic conditions, were used as the baseline for analysis. Descriptive statistics and discourse analysis were employed, considering: a. features of children's movement and bodily expressions (addressed as embodied cognition, where children showed their understanding of the story characters' dilemmas through their bodies and movement) and b. the frequency and variety of emotions referred to in children's verbal and gestural responses (addressed as the role of emotional understanding in verbal and non-verbal contexts).

Movement and bodily expressions during enactment

Children acted out the story characters through body expressions and movement that showed their perception and understanding of what the challenge was each time, either involving empathy or not. The criteria used to identify children's embodied cognition and in particular the characteristics of their movement and body changes were adapted from the OSMOS (Castañer et al. 2009). There were five criteria implemented, two for locomotion and three for the body–space relationship. For locomotion, the two criteria

were: (lp): Propulsion–stop locomotion, including motor skills that occur at the start and finish of a body movement through space and (lc): Simultaneous coordinated locomotion, including motor skills that enable to move through space via the combined action of all body segments (e.g. quadrupedal locomotion). For the relation between body and space, the three criteria analysed were: (c) body changes: variations in body posture, (d): change in spatial direction and (n): change in spatial level.

The frequencies of each of these five motor skills (lp, lc, c, d and n) were recorded and analysed for each condition and group of children. The most frequently demonstrated motor skill overall was that of body change (c): 33.6% and the least frequently recorded was that of propulsion–stop locomotion (lp): 15.9%. Changes in body posture and gestures were expressed in both conditions more frequently compared to the other criteria of movement and change in spatial direction and level. In relation to the Condition, there was a borderline significant difference, $t(38) = 1.98$, $p = 0.55$, where Cohen's $d = 0.63$, implying that children in the empathic condition demonstrated the five motor criteria more frequently. Children tended to be more active and expressive when they embodied the feelings of the characters compared to when they acted out events from the story. They indicated higher levels of body movement and body-space relationships (fig 1).

From a story-character point of view, it was found that there was significant difference in levels of bodily expressions between Conditions, when children enacted only the wolf, $t(8) = 2.45$, $p < .04$. There was no significant difference between the two Conditions when children embodied the other story characters. Interestingly, the story character that encouraged more action and mobility (as defined by the five OSMOS criteria), irrespective of the Condition, was the woodcutter by 30.4%, then LRRH by 27.9%, then grandma by 21.6% and lastly the wolf by 20.1%. In addition, children who engaged with the empathic-based enactment of the story characters tended to spend more time overall compared to children in Condition 2. The Cohen size effect $d = 1.2$ implies that there was a meaningful difference between the two conditions showing that children who engaged

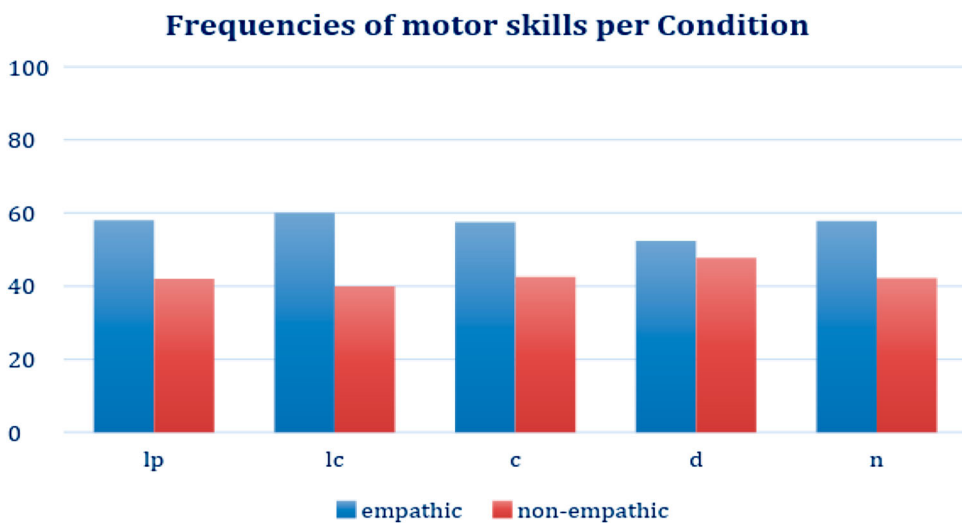


Figure 1. Frequencies of motor skills in Conditions 1 (empathic) and 2 (non-empathic).

in the empathic dilemmas would spend longer time in experiencing and acting out the critical moments. In particular, LRRH and the wolf took longer to experience compared to grandma and the woodcutter.

Frequency, variety and expression of emotions

Overall, there were 333 verbal connotations recorded, 203 of which included an emotion-related word. The frequency of the basic emotions that occurred through verbal interactions were: happy (34.5%), scared (29.1%), sad (26.6%) and surprised (9.8%). According to a binomial analysis, the children were more likely to make reference to basic emotions in the empathic condition ($p = 0.01$). Thus, the Condition (empathic vs non-empathic) had an effect on the frequency of emotions in children's discussions.

Besides the four basic emotions, children reported other emotions too. For example, they reported that LRRH was feeling *grumpy*, that the wolf was feeling *hungry* and that grandma was *worried* about LRRH.

- J: What sort of things was the Wolf feeling in that story?
 C3b: Erm ... hungry.
 C2d: He felt angry because he couldn't get Little Red Riding Hood.
 C9d: And he didn't get Grandma.

Children evidenced cases where they couldn't justify the characters' emotional states, even if the facilitator tried to prompt their thinking through open-ended questions. Nevertheless, there were cases where children would show the capacity to take the perspective of the other and empathise with the story character's situation. Thus, there was no significant difference ($p < .05$) between children from both conditions.

- J: So, how was the Woodcutter feeling?
 C6c: Sad.
 J: Sad? Why?
 C6c: Because the Wolf is in the house.
 C12c: And because he thinks that Little Red Riding Hood is being gobbled up in his tummy ...
 J : So you think the Woodcutter is not scared? Why not?
 C11a : Because he is brave.

In addition, it was found that when children were encouraged to verbalise the story characters' feelings (in phase 3) they were able to do so, through both verbal and gestural expressions. This was more evident in the condition where children had already acted out the story character with an emphasis on their feelings throughout the storyline. Even after phase 2, when the actual enactment of the story took place, children would evidence connections between the characters' emotional states to movements and gestures.

- J: [As LRRHs hiding under the bed] How do we feel?
 C (collectively): Scared (children act as scared by trembling)
 J: Why are we scared?
 C13a: *Whispers* We don't know what the wolf might do.
 J: So what do we do?
 C15a: We wait for the woodcutter.

Discussion

Children who engaged with the enactment of the emotional states of story characters were found to have richer experiences of bodily and verbal expressions. These findings support previous research that underline the importance of drama in enhancing children's empathic perception (Karniol 2012), as children move from the external characteristics of story characters to their psychological and emotional states (Nicolopoulou and Richner 2007; Adomat 2012). This move enables children to develop a deeper understanding of others and their feelings as part of their social development. Role-playing, according to Goldstein and Winner (2012), enhances theory of mind and empathy as over time actors learn to mirror others' emotions (empathy) and reflect on what others are thinking and feeling (theory of mind).

During the enactment of the story characters, motor skills and bodily movements were recorded in order to illustrate how the body is a vehicle in connecting the child to the world (Harris 2000). This reflects the embodied account where cognition depends upon the kinds of experience that come from having a body with various sensorimotor capacities (Varela, Thompson, and Rosch 1991). Through sensorimotor experiences, children build their conceptual representations (Antonucci and Alt 2011) including their understanding of others' perspectives. Through motor, tactic, visual and auditory explorations, children from really young ages learn about the objects and people around them. They relate to their environments and worlds through their senses and actions and gain dynamic perceptual knowledge and representations.

In this study, it was found that the body acts and moves in different ways when the emphasis of enactment is given to feelings compared to facts. Children tended to spend more time and to use more openly their bodies when acting out the characters' feelings. In the empathic condition, children showed more frequent body changes, changes in the spatial level and changes in spatial direction. The criteria used were based on the OSMOS proposed by Castañer, Torrents, Anguera, Dinušová and Jonsson (2009). This instrument views motor behaviour as a sequence of postures and kinemes of varying complexity that follow one another. Thus, motor skills arise out of the combination of movement patterns that introduce the work of the body, both as a whole and in its various segments.

The observed differences in children's body responses based on the condition could relate to the account of embodied affectivity (Fuchs and Koch 2014) that emphasises the role of the body for emotion and empathy. Based on this account, social understanding is enhanced through the experience of bodily expressed emotions while, at the same time, the body functions as a medium of emotional perception. Hence, there is a reciprocal connection between the body and emotional understanding. As such, enacting the emotional states of story-characters could be an effective tool in promoting social understanding and perspective-taking. Future research could shed more light on the role of the adult or the role of particular story-characters (and their characteristics) in this process. LRRH has been used a few times in research on children's emotional attribution (Bradmetz and Schneider 1999; Ronfard and Harris 2014) but what about other classic stories or stories created by children themselves?

Wellsby and Pexman (2014) argue that embodied learning experiences are more beneficial if the information obtained links directly to the information learned. Hence, enacting stories can be a space where children learn and familiarise themselves with diverse situations,

emotional or not. Through their sensorimotor interactions, children get the opportunity to experience an embedded biological, psychological and cultural context (Varela, Thompson, and Rosch 1991). It is through this context that children learn, are and become. Story dramatic play provides such rich learning experiences. It has been found to be meaningful, engaging and pedagogical for young learners in many directions; in enhancing, for instance, literacy (Kiefer and Trumpp 2012; Boyle and Charles 2010), gesturing (Goldin-Meadow and Beilock 2010), perspective-taking (Goldstein and Winner 2012), language processing (Wellsby and Pexman 2014) and Theory of Mind (Nicolopoulou and Richner 2007).

Lastly, in terms of emotional understanding and linguistic expression, children identified all four basic emotions and in their discourse they primarily referred to happiness. These findings support previous studies that underline that children understand happiness sooner than negative emotions (Gao and Maurer 2010; Wang, Liu, and Su 2014). Thus, fear was also frequently identified compared to sadness. A possible explanation could be because of the context of the story in that a sense of uncertainty was experienced by most story characters. Children who participated in the empathic condition would use more frequently emotions in their narratives compared to children who participated in the non-empathic condition. This could imply that the embodiment of emotional states of story characters enables children to linguistically contextualise and express others' feelings. However, further research is needed to show how language, emotional understanding and drama are interlinked.

Conclusions

Drama and role-play have a rich history in early childhood settings. This study aimed to explore how a shift in emphasis on the story-character's emotions rather than events influences 3-year olds' enactment. It was found that when children engaged with the emotional states of the story-characters of LRRH, they tended to use their bodies more openly in space and to refer to emotions more frequently in subsequent discussions. Children indicated that their embodied cognition and motor skills were more active when embodying emotional dilemmas rather than factual dilemmas that story-characters confronted. A pedagogical implication, that needs further exploration, could be the consideration of adult-facilitated drama experiences and deliberate focus on the story-characters' emotional states as a way of addressing aspects of social and emotional development in early childhood classrooms.

Disclosure statement

No potential conflict of interest was reported by the authors.

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