Embodied meaning making: children's use of physical actions to respond to wordless picturebooks.

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Introduction

Talk is often seen as critical to the education process as it is a tool for collaborative *meaning making* (Department for Education, 2014a). This project is concerned with the *dialogic* meaning making of children in the classroom. The term dialogic is influenced by the work of Bakhtin (1981, 1984). He saw the development of ideas as a process of exchange between voices. However, it is this paper's contention that meaning making is not limited to talk. The theory of multimodality supports this idea as it proposes that communication encompasses myriad *modes* (Jewitt, 2014). These modes include *embodied* content. The term embodied is used here to mean physical actions that act as communication, such as gestures (Norris, 2004). The pedagogical approaches found within the Early Years Foundation Stage (EYFS) seem to echo the theoretical approach of multimodality as value is ascribed not only to what children say but to what they do as part of meaning making (Early Education, 2014).

Recent literacy research has drawn attention to the value of multimodal artefacts, such as visual texts, for developing meaning making skills (Maine, 2015). Despite an increased appreciation of multimodal artefacts, multimodal responses, such as physical actions, are under-researched. In light of this lack, a research project was developed to explore how children use embodied meaning making to respond to multimodal artefacts. The focus for this project is how children use gesture as part of embodied meaning making. McNeill (1992) suggests gestures connect internalised thoughts and externalised communication, indicating their suitability for supporting dialogic meaning making. In this research paper, the role of gestures in embodied, dialogic meaning making is explored through children's engagement with a wordless picturebook. The research question to be explored in this paper is as follows: *How is meaning making embodied in the paired reading of a wordless picturebook?*

Literature review

Underpinning theoretical framework

Social constructivism holds that all meaning making must first occur on a social level. Vygotsky calls externalised, social meaning making "interpsychological" and internalised, meaning making "intrapsychological" (1978, p. 57). However, interpsychological meaning making is far from seamless. Instead, a tool is needed to mediate this meeting of minds. Vygotsky (1962) proposes speech. Speech allows children to structure their thoughts into units to be shared with others, which then affect the thoughts and speech of another. Vygotsky (1978) calls this socialised speech. The logocentricism of Vygotsky has led to socialised speech being a concern in the classroom.

Dialogic meaning making

According to Bakhtin, socialised speech exists in "an elastic environment", where words navigate between speaker and listener, gathering traces of previous usages (1981, p. 276). This is the Bakhtinian dialogic imagination: the ability to hear another voice. In so doing, meanings are co-constructed in a manner similar to that proposed by Vygotsky. However, the process of dialogic meaning making is complicated by the theory of multimodality, which highlights that communication is not limited to verbal language (Kress & van Leeuwen, 2001). Instead, multimodality recognises that we make meaning in a variety of ways, including gesture. Thus, multimodality can contribute to dialogic exchanges. Gestures are identified as a mode that can connect internalised, dialogic meaning making to externalised situations (McNeill, 1992). Vygotsky (1978) recognized gesture's communicative potential. He noted that children will use a grasping gesture as embodied, socialized communication, indicating to another that they want an object. Understood in light of socialized speech, gestures orientate people towards one another and create a connection between the intrapsychological and the interpsychological. Gestures do this by giving physical form to thoughts (McNeill, 1992). In this sense, embodied modes, such as gesture, affect dialogic meaning making by providing an insight into internalised thought.

Multimodality in the EYFS

Using this understanding of gesture, it is important to offer learning environments where embodied meaning making is appreciated. The EYFS emphasises the importance of providing varied learning experiences (Early Education, 2014). According to the Effective Provision of Pre-School Education (EPPE) project, the efficacy of these experiences is improved by 'sustained shared thinking' (Sylva et al., 2004). Sustained shared thinking is when two or more individuals collaborate to develop, extend and evaluate meaning (Sylva et al., 2004). It is significant that this practice is called sustained shared thinking, not sustained shared talk (Siraj-Blatchford, 2007). I contend that this allows for a broad interpretation of how shared thinking can manifest. The Reggio Emilia approach to learning is a precursor to this assertion. This approach proposes that children have 'one hundred languages', or multiple modes of expression, including embodied modes or physical actions (Edwards, Gandani & Forman, 1998). Thus, the interpretation of children's meaning making should not be limited to verbal modes but should encompass a range of modes, including embodied, physical actions (Nyland et al., 2008; Rinaldi, 2001).

Picturebooks as multimodal artefacts that support multimodal responses

A pivotal part of multimodal research has involved analysing visual modes (Bazalgette & Buckingham, 2013). This has involved identifying visual material, such as *wordless picturebooks*, as texts to be read for meaning (Kress & van Leeuwen, 1996; Kress, 2003; Arizpe, Colomer, Martinez-Roldan & Bagelman, 2014). Wordless picturebooks are texts where images carry the weight of meaning (Arizpe, 2013; Nikolajeva, 2005). Hassett (2010) asserts that a wordless picturebook will garner different modes in response to it. She draws attention to how gesture might be used to support spatial elements of a visual text. For example, an extended arm can indicate the dynamic trajectory of a character, despite their static rendering on the page. In this sense, gestures provide a three-dimensional element to a two-dimensional text. This makes a case for the use of spatially-orientated embodied modes.

Research Design

The context of the case study

This research project's methodology utilised naturalistic inquiry, within an exploratory case study. The case study was conducted in a single classroom within a suburban primary school. The research involved six children completing an activity in pairs. Pseudonyms are used throughout this paper and are as follows (Table 1).

Table 1
An overview of the participants and their pairings

Pair	Pseudonyms	Age related expectation (ARE)	Speech, language and communication needs
1	Pippa	Above ARE	No
	Flora	At ARE	No
2	Mila	Above ARE	No
	Thomas	Below ARE	Yes
3	Fran	Below ARE	No
	Sam	Above ARE	No

The research activity

The research activity was a paired reading of the wordless picturebook *Journey (*Becker, 2013)*. Each paired activity was recorded using a fixed camcorder. A crucial quality of the data generated was its multimodality. Additionally, the comprehensiveness of the video data resisted prematurely reducing it to codes (Heath, Hindmarsh & Luff, 2010). Instead, the data could be repeatedly scrutinised throughout the transcription process. The data was transcribed using the ELAN annotation tool (Wittenburg, Brugman, Russel, Klassmann, Sloetjes, 2006). This tool creates 'tiers' of transcription, recognising multiple modes of communication.

Grounded theory and inductive coding

The coding process was influenced by constructivist grounded theory, which asserts that knowledge and, thus, theories can only ever be subjectively constructed, not discovered (Charmaz & Bryant, 2011). The influence of constructivist grounded theory on this project's research design meant that inductive, open coding was used (Creswell, 2012). The codes and the definition of the codes generated for the data are given below (Table 2). At the outset, the data was transcribed for both verbal and gestural content. However, this paper foregrounds the gestural content of the data as it is focused on children's physical worlds.

Table 2
Codes and their definitions

Codes	Definitions
Commanding space	When the body or limbs block the movement of the other child.
Creating distance	When the whole body or limbs are angled away from a space.
Following partner	When the whole body is angled towards the other child.
Showing uncertainty	The elevation of one of both upper limbs in an upward or peripheral direction.
Directing	Moving the hands so as to conduct the movements of the other.
Pointing	Extending the arm towards an object, affirming existence and location.
Linking objects	The movement of a finger or hand between two or more objects.
Tracing motion	Moving a finger or hand over the book to indicate how an entity moves.
Enacting	Moving the whole or parts of the body to act out the story.
Illustrating	Broad movements of the hands to express abstract qualities.

Ethics note

This research project adhered to British Educational Research Association's (BERA) *Ethical Guidelines for Educational Research* (2011, 2018).

Findings

Presentation of the data

Table 3
Code frequency

Code	Pair 1	Pair 2	Pair 3	Total instances
Commanding space	8	7	5	20
Creating distance	3	4	4	11
Following partner	8	4	1	13
Showing uncertainty	2	2	1	5
Directing	8	4	5	17
Pointing	46	30	21	97
Linking objects	21	5	3	29
Tracing motion	11	6	7	24
Enacting	14	10	3	27
Illustrating	6	3	3	12

Having assigned codes to the data, I constructed four descriptive themes: managing space; identifying entities and negotiating priorities; making connections and identifying causality; imagining and becoming beyond the self. Below is a representation of how the codes were assigned to each theme, including where codes appear in more than one theme (Figure 1).
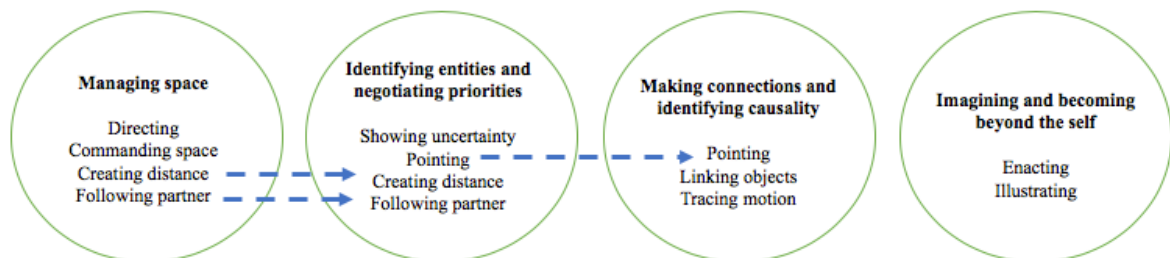

Figure 1. A diagrammatic representation of the assignment of codes to themes.

Theme one: using physical actions to manage space

The code 'commanding space' suggests an assertion of social dominance. This interpretation comes from instances where one child pushed away the arm of their partner. In contrast to this interpretation, there were instances when commanding space appeared to contribute to meaning making. In Figure 2, Pippa instructs Flora not to look at the book, managing the space by folding over a double page spread and using her body to reduce Flora's access to the text.
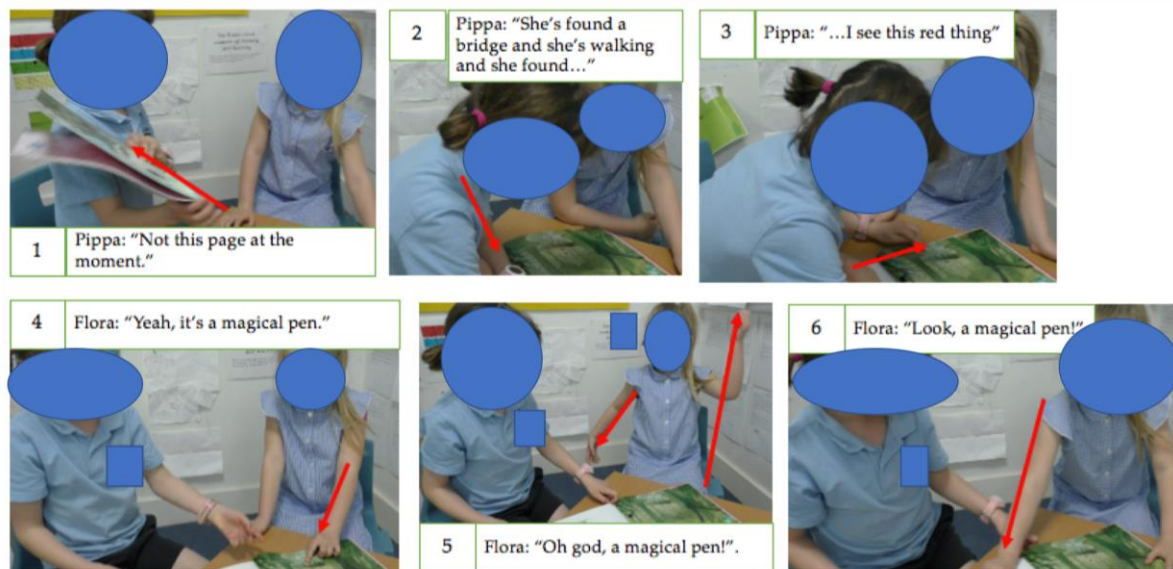
Figure 2. Commanding space for social dominance.

Nikolajeva (2010) notes that page-turning is a key mechanism for creating narrative gaps in wordless picturebooks. On this occasion, the double page spread means the narrative gap is reduced. Pippa appears to be attempting to enhance the narrative gap. In so doing, Pippa extends the book's narrative beyond the two-dimensional page into the three-dimensional physical space shared by her and Flora. Flora's response is memorable. She quickly points at the book and labels the red crayon: "O*h god, it's a magical pen"*. Flora leans her body away from the book, extending both arms over head in an illustrative gesture, implying narrative significance. She then quickly leans forward and extends her right hand towards the right-hand page, pointing at the red crayon as she implores *"Look, a magic pen!"*. Pippa's commanding of space appears to control the narrative pace, allowing for Flora to place emphasis on the child's act of discovering the red crayon.

Theme two: using gesture to identify entities and negotiate priorities

Pointing was a frequent code within the data. This prominence necessitates questioning whether pointing contributes to meaning making or shared sustained thinking. In Figure 3 Sam succinctly labels the contents and actions of a page: *"He drops four pieces of paper. Then he did that. And then he did a line. And then he went out the door."* Sam's gesture is synchronised with this verbal content, pointing from one aspect of the picture to the next. During this, Fran does not move and only briefly utters *"yep"*. Although Sam is using an embodied mode to identify salient entities in the text, it does not seem to contribute to dialogic meaning making as there is no clear sign of an exchange between him and Fran. However, it is possible to interpret pointing as a preliminary step towards meaning making.
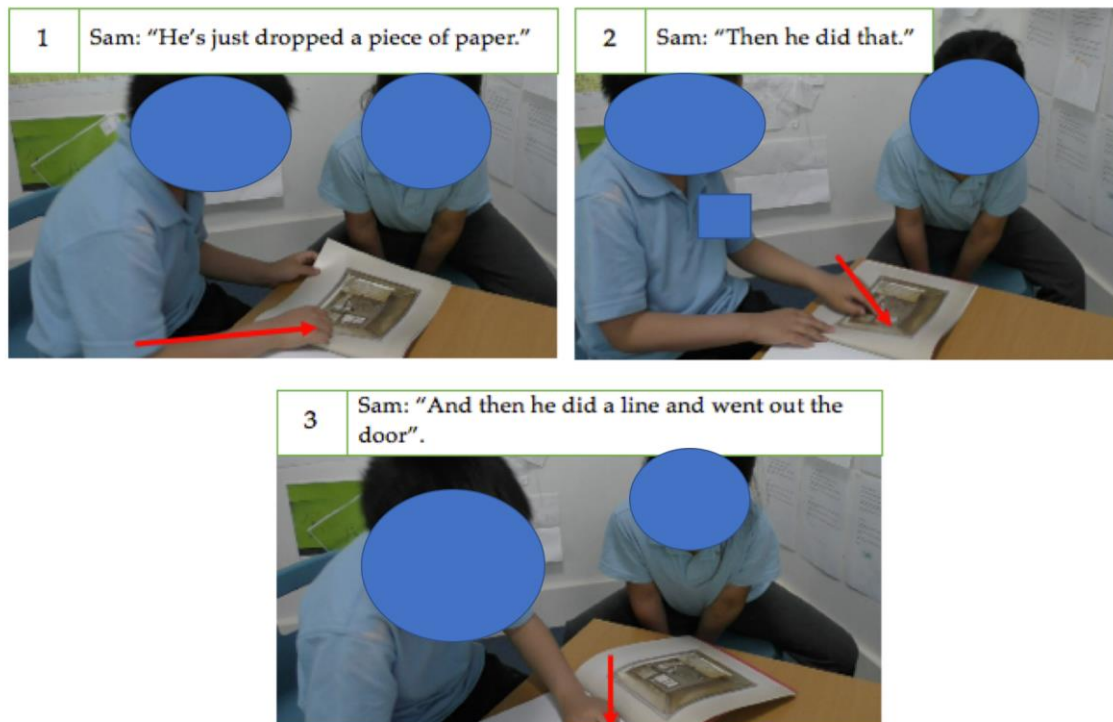
Figure 3. Labelling and pointing to identify entities.

Theme three: using gesture to make connections and identify causality

Within the videos there were instances when the children refined pointing to indicate character significance and narrative trajectories. For example, pointing transitioned into tracing motion and linking objects. It is possible to suggest that tracing motion and linking objects contribute to meaning making by creating three-dimensional representations of action previously restricted to two-dimensional, visual modes. Pippa and Flora used the action of linking objects and tracing motion to explore the cause and effect of actions on characters.

In Figure 4, Pippa attempts to express her opinion about one character: *"um, I think the girl is sad, feeling sad, because, feeling sad"*. Her use of the word 'because' suggests that she is reasoning to identify causality. However, the causal relationship she is attempting to establish is unclear as her speech is tautologous. In contrast, by paying attention to her gestures it is possible to gain an insight into Pippa's intrapsychological process and perceive the causality her verbal content is lacking. She points to a character and then links this character with a static scooter, her finger moving rapidly between the two. Her gesture fills the gap in her verbal content: the child is sad because she is not playing on her scooter. At the end of Pippa's declarative statement, Flora points to the previous page, questioning *"What is that?"*. Flora's pointing and questioning prompts Pippa to follow her partner. Pippa traces her finger between the characters and then drags her finger from them to the earlier character, saying *"These aren't playing with her"*. This time, although lacking the word 'because', Pippa's linking gesture can be seen to elaborate on the causality identified earlier. Namely, the child is sad not simply because she is not playing with her scooter, but because she does not have anyone willing to play with her. This exchange shows how gestures can complement verbal content in the identification of causality.

Figure 4. Linking objects to bridge narrative gaps.

Theme four: using the body to imagine and extend beyond the self

Previous research has shown that children are capable of enacting the world presented by a text (Sipe, 2007). When doing so they use their bodies creatively to engage in possibility thinking (Craft, 2000). In Figure 5, Sam has asked Fran if she has something to say. This follows Sam having established a spatial and causal connection between a bird and a flying carpet. Fran leans away opens her arms out to either side to enact flying. Her gesture is expansive, illustrating the spacious nature of the journey. Interestingly, Sam seems to respond to Fran's transition from enacting to illustrating by tracing the motion of an arch across the page. He appears to be establishing a connection between Fran's physical manifestation and the implied narrative in the text. Fran's illustrating is complemented by a transition away from labelling to narrating: *"And then, he flew over the sky and it was night-time and he was going home, back to his home"*. Fran's illustrating seems to have allowed for possibility thinking in the form of her constructing narrative elements that are not depicted, as the page does not indicate the journey's destination.
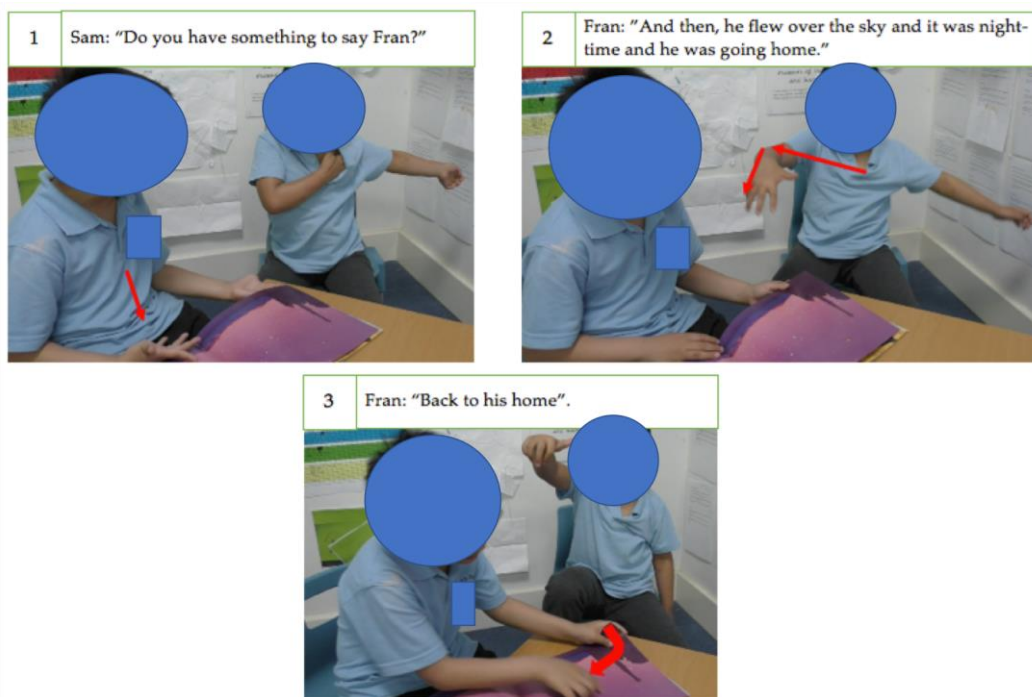
Figure 5. Illustrating to enable possibility thinking

Discussion

How is meaning making embodied in the paired reading of a wordless picturebook?

Physical actions affect dialogic meaning making by providing an insight into internalised thought. Gestures connect the intrapsychological and interpsychological. The themes of identifying narrative entities and making connections are of particular interest as they are linked. Children used pointing, linking objects and tracing motion to traverse narrative gaps, establish unexpressed narrative causality and imagine beyond what was visible. In brief, the children had to make salient that which was not explicitly there, both to themselves and to each other. They did this through physical action. Thus, the effects of embodied meaning making in this case was to affect possibility thinking as it gave physical representations to abstractions. In turn, this allowed the children to imagine beyond what was explicit in the text. This imaginative potential links embodied modes to the pedagogy of the EYFS. The EYFS recognises imaginative play as crucial to development (Department for Education, 2014b). This assertion makes a case for the continued recognition of embodied imagination and meaning making beyond the Early Years.

Implications: recognising and valuing physical actions as part of meaning making

The research project revealed a range of effects caused by embodied modes, such as establishing shared space with a peer, identifying narrative and causal connections and enabling imaginative 'possibility thinking'. Above all, they showed that children are adept at utilising physical action to impact on their own and others' meaning making. An implication of this research is that practitioners in the Early Years should feel validated in their decisions to provide opportunities for children to access multimodal resources. Additionally, practitioners should feel justified in valuing embodied responses. This approach should filter

up into the year 1 classroom so that children continue to have the opportunity to engage with a range of multimodal resources and teachers can observe what children do as much as what they say and write in order to support learning. The need to continue to research the effects of embodied modes seems particularly pressing when the case has already been made for the value of multimodal artefacts (Maine, 2015). The recognised and supported modes of response need to keep pace with the acknowledged modes of representation.

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