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Pictures and picturing: mental imagery whilst reading illustrated novels

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ABSTRACT
The medium of illustrated novels has been neglected by educational research, and the limited current research on the influence of illustrations on a reader’s mental images is largely negative in tone. However, by adopting a participatory multiple case study methodology, this research provides a new understanding of the nature of mental picturing when reading illustrated novels. In exploring the responses of five 9–10-year-old participants to three illustrated novels, this study demonstrates that the interactions between illustrations and mental pictures are more complex than previously theorised. In addition, far from having a negative impact upon mental picturing, the potential of illustrations to interact with mental pictures should be embraced by practitioners as an opportunity for growth, enjoyment, and increased criticality and creativity.

Introduction
Illustrated novels have received relatively little academic attention in the field of education. Whilst the novel has long been studied and explored, and the wide range of picturebook scholarship has led to a huge uptake in using picturebooks in the classroom, the potential of the illustrated novel as its own medium has been largely ignored. Illustrated novels are complex texts in which words and illustrations are interdependent. As both multimodal texts and complex prose fiction narratives, they have commonalities with picturebooks and novels, but also their own characteristics and affordances which are particular to the medium. One of these is the role that picturing, or mental imagery, plays during the reading process.

The question of what we see when we read has a long history. The role of picturing has been discussed for generations in various disciplines, beginning in early philosophy with Plato’s consideration of imaginative images (trans. Lee & Lee, 2007), and carrying on through the centuries to the philosopher Hume’s (1784) suggestion that mental imagery provides the foundation for thought. Since then, picturing has been explored in discussions of the philosophy of imagination and language (Russell, 1921; Wittgenstein, 1953), cognitive sciences (Paivio, 1978, 2007; Thomas, 2014; Tye, 1991) and reading (Benton & Fox, 1985; Fry, 1985; Tolkien, 1964). This breadth of disciplinary interest has led to...
widely differing foci and approaches, as well as differing terminology, with studies variously referring to picturing, visualising and mental imagery (often interchangeably), to describe the same phenomenon.

Most neuroscience studies of picturing focus on single-word or short passage experiments, which Kuzmicova (2014), Brosch (2017) and Rokotnitz (2017) argue neglects an understanding of the specific experience of picturing during the reading of longer narratives. These scholars instead adopt a cognitive poetics approach, through which they relate their own experiences as readers to psychological, neurological and philosophical scholarship. As such, whilst they place their experiences within a larger understanding of the experiences of affective responses whilst reading, they are not able to actively explore the varying experiences of individuals in detail. Kuzmicova (2014) has thus called for greater empirical exploration of the topic. Mackey’s (2019) discussion of visualisation and reading, which draws on the reported experiences of adults between the ages of 18 and 25, further emphasises the importance of considering the varied experiences of different readers. This study therefore extends these understandings by taking a participatory multiple case study approach to examine how a group of young readers report their experiences of the picturing process when reading illustrated novels. In examining this topic, this research not only expands understanding of the picturing process, and particularly its relationship to illustrations, which has so far not been explored, but also begins to identify some of the characteristics unique to illustrated novels and their potential affordances for readers.

**Literature review**

The picturing process is generally regarded as an unconscious interaction between the text and the reader. Mental images are prompted by the text, but readers also bring their own tendencies, knowledge and experiences to their mental images, and recombine former experiences in order to create new pictures (Mendelsund, 2014; Sadoski, Goetz, Olivarez, Lee, & Roberts, 1990; Speer, Reynolds, Swallow, & Zacks, 2009). It is important to note that the automatic process of picturing is related to, but not the same as, the comprehension strategy of visualising, where readers are encouraged to pause and imagine the events, setting and characters of a story as an aid to comprehension, requiring conscious effort on the part of the reader (Garnham & Oakhill, 1992; Keene & Zimmermann, 2007).

The few scholars who have discussed picturing when reading illustrated texts often suggest that illustrations have a negative influence on picturing. This is concerning, given that Paivio’s (1978, 2007) dual-coding theory suggests that picturing what you read makes a text both more meaningful and easier to recall, a view supported by some theoretical scholars of reading (Benton & Fox, 1985; Fry, 1985). Bettelheim (1976) argues that illustrations can restrict a reader’s ability to create their own pictures, though this argument is based on a theoretical approach which reflects only his own personal experiences. Similarly, Marshall (1988) claims that surveys have found that older children feel that illustrations in storybooks clash with their own images of characters, and argues this may act as a deterrent to reading. However, she does not actually cite any of these surveys, or provide additional evidence to support her claims, so it is difficult to state that this argument has much validity. Mendelsund (2014), like Bettelheim, explores picturing
through an introspective methodology, where he theorises based upon his own personal experiences of reading. His work somewhat complicates these negative views by arguing that illustrations in novels only prevent a reader from forming their own pictures during the passages that are illustrated, though he acknowledges that this does not apply to books with illustrations on every page. Mendelsund also takes a largely negative view of the influence of illustrations on picturing, describing it as ‘the imposition of another’s imagination’ (p. 41). Whilst these studies raise important questions about the nature of picturing whilst reading illustrated texts, they do not consider the experiences of a range of individuals.

Exploring a range of experiences is especially relevant because not all readers naturally create clear mental pictures, and may need to train actively in order to do so (Wilson, 2012). Indeed, picturing is a highly individual capacity, with readers having tendencies to image in differing frequencies, and with varying levels of vividness and detail (Brosch, 2017; Kuzmicova, 2014; Rokotnitz, 2017). A cognitive neuroscience study conducted by Zeman, Dewar, and Della Sala (2015) found that some people never create mental images, a condition the authors refer to as ‘aphantasia’. However, Sadoski and Paivio (2013) argue that is highly unlikely for a reader never to experience any degree of mental imagery at any point, and the work of Zeman et al. (2015) does acknowledge that aphantasia is much more common for voluntary visualising (such as actively using mental imagery as a comprehension strategy) than for involuntary visualising (such as automatic picturing or dreaming). The experience of picturing may also be inconsistent for a reader throughout a text, as demonstrated by the work of Kuzmicova (2014) and Brosch (2017), who explore their own experiences of picturing whilst reading narrative texts, and identified differing levels of mental imagery in both frequency and vividness throughout a book.

Where readers are less likely or able to create their own mental images, Nodelman (1988) theorises that illustrations may support the development of the ability to picture. This supposition is supported by Graham’s (1990) description of exploring Charles’ Keeping’s illustrations in the narrative poem The Highwayman (Noyes & Keeping, 1981) with young readers. Graham concludes that the illustrations provided support for students with weaker picturing skills by helping them to create meaning from the text. However, the lack of detail reported by Graham as to the nature of the study makes it difficult to assess the rigour and reliability of her findings, further demonstrating the need for greater empirical exploration of the topic which takes into account the individual nature of picturing.

Another factor which may influence the picturing process is the content of the text, due to the role of previous experiences in the formation of mental images. Dekker, Mareschal, Johnson, and Sereno (2014) conducted a neuroimaging study into automatic picturing, using an fMRI scanner to observe the spontaneous responses in the cortex to single printed words by participants aged 7 to 45. The study found that automatic picturing skills are developed over time, as they are much stronger in adults than in children, and are also influenced by an individual’s personal experience. A similar neuroimaging study conducted by Speer et al. (2009) examined the spontaneous cortex responses of 28 adults to four short (less than 1500 words) narrative passages. They found that a reader’s existing knowledge of the world was combined with the information in the text to develop mental situation models, which was a process similar to recalling previous
situations. Similarly, Sadoski et al. (1990) conducted a study asking 72 college students to read a 2100-word story and report their experiences of images whilst they read. The study found that the participants reported mental images which were generally consistent with the text, but which also included elements of other experiences, memories of which were prompted by what they read.

This integration of previous visual experience and text is complicated by the fact that readers may have previous experience of something, but do not necessarily have a mental image attached to that experience (Kuzmičová & Cremin, 2021). In addition, the degree to which individual texts are likely to prompt memories in individual readers is highly variable (Kuzmičová & Bálint, 2019). For instance, scholarship by Kuzmičová and Cremin (2021) has found that realistic fictional texts are more likely to prompt conscious memories of past experience than fantasy fictional texts, a finding which may also apply to the unconscious process of remembering that takes place during automatic picturing.

This complex interaction of previous experience, text and the picturing process may mean that readers find it more difficult to picture unfamiliar aspects of a text, such as previously unencountered fictional creatures. If this is the case, then the role that illustrations play in supporting or restricting the creation of mental pictures may be different depending upon the familiarity of the elements within the novel, and whether a reader has a mental image attached to that familiarity to draw upon.

A previous empirical study I conducted on readers’ experiences of the illustrated novel A Monster Calls by Patrick Ness and Jim Kay (Aggleton, 2017) suggests that the interaction of illustrations with a reader’s own mental pictures may influence the ways in which they engage with a book. Participants reported that the illustrations provided more detail and information than they created through their own mental pictures, sometimes impacting upon the meaning they made from the text. One participant commented that the illustrations offered alternative ‘possibilities’ to her own pictures, encouraging her to consider different interpretations (p. 240). In addition, all participants commented on the silhouette style of the characters, which allowed them to bring their own imaginations to the images rather than providing too much detail (p. 240), suggesting that the style of illustrations may play a role in the picturing process. These findings reflect theories of predictive processing, which argue that perception and action are supported by the matching of predictions with the input of incoming sensory information (Clark, 2013). The possible effects of the relationship between illustrations and picturing raised by this earlier work have been explored in greater depth in this current study.

To address these various issues raised by the existing literature, I explore the following research question:

What can be learned about the nature of picturing when reading illustrated novels from the reports of five 9-10-year-old participants?

**Research design**

The findings presented in this article are drawn from a larger project exploring children's interactions with illustrated novels. I conducted a multiple case study working with five children (Alexander, Amy, Leo, Nicole and Sophie) aged 9–10 (Year 5) in an average-
sized primary school in Cambridgeshire, England. Participants were chosen through theoretical sampling, where the children’s teachers and I discussed the requirements and process of the project, and used our judgement about which children would probably manage the level of reading required, and would also be likely to enjoy participating (Bloor & Wood, 2006). We selected participants who were competent readers, though they did not all regularly read for pleasure, and who were able to articulate and discuss their experiences of reading. Six participants were initially selected, with one participant withdrawing during the project, and whose responses have not been included here. Whilst class, race, ethnicity and religion were not selecting factors, due to the relatively small pool of available participants, the participants did come from a diverse range of British backgrounds. None of the participants had disabilities, were neurodivergent or spoke English as an additional language.

The limited number of participants allowed for an in-depth exploration of their experiences, but also limits the scope of these findings. The findings discussed here therefore present the beginnings of a greater understanding of the experience of mental picturing whilst reading illustrated novels, but further research with a wider range of participants is necessary for a fuller understanding of these processes and experiences.

To explore the interactions between picturing and illustrations, I adopted a socio-cultural lens. The socio-cultural view of reading can be seen as an extension of the reader-response theories of Rosenblatt’s (1938, 1978) concept of reading as a ‘transaction’ between reader and book, and Iser’s (1980) theory of aesthetic response, both of which suggest that meaning is made not purely by the book, but in an interaction between the book and the reader, and is therefore influenced by the reader’s socio-cultural position (Gee, 2000, 2008; Snow, 2002; Snow & Sweet, 2003). As such, the reader brings their own experiences and understandings to the reading process, and has a role in creating meaning equal to the contents of the book. This transactional process for creating meaning also mirrors the picturing process, as outlined in the literature review. Due to these interacting factors, experiences of reading are variable due to the individual nature of the reader, but are also likely to have commonalities, due to the static nature of each book. I therefore undertook a multiple case study to explore the roles of both individual reader and individual book. Each case is an examination of the responses to a different illustrated novel: The Imaginary (Harrold & Gravett, 2015); The Midnight Zoo (Hartnett & McNaught, 2010); and Not As We Know It (Avery & Grove, 2015). The cases are based on the responses to the novels, rather than just the novels, or just the participants, in order to reflect the importance of both book and reader rather than one or the other (Rosenblatt, 1938, 1978).

Following from the socio-cultural lens, I took a participatory approach which placed children’s voices at the forefront of the research, and involved sharing decisions about the research process and focus with my participants. The books were chosen by the participants through a vote from a selection I provided to explore several aspects of illustrated novels which I judged from a review of the literature as likely to be significant. A range of data collection methods were decided upon in discussion with the participants, so they were able to communicate through whichever means they felt were most appropriate (after they received training on a variety of research methods and the opportunity to practise using these different methods) (Woodhead & Faulkner, 2008). Each participant read as much as they wanted to per week, and if they chose, recorded their initial responses in journals and
annotated a photocopy of an illustration from the section they had read. We then discussed their responses in individual unstructured interviews. The participants then read further in the next week, and we continued the cycle until each participant reached the end of each novel. The data collection took approximately six months to complete.

This participatory approach enabled me to access aspects of picturing which have not been explored by other studies. Whilst I was unable to explore which precise parts of the brain were activated, as neuroimaging would have allowed, or gain the depth of detail provided by an introspective methodology, by exploring children’s own reports of their experiences of picturing I was able to access a richness of qualitative description which neuroimaging would not provide, as well as a range of different responses, which would not be possible with an introspective methodology. With the limited evidence on the impact of illustrations on automatic picturing, I also wanted to ensure that I was not missing key facets of the experience by taking a researcher-led approach. By allowing my participants to direct much of the course of the research, new areas for exploration were opened up (and other areas which I had presumed would be significant but which my participants informed me were not significant for them were abandoned).

There are also notable limitations to this approach. Whilst I was not their teacher, the research was conducted in a school with the attendant adult–child power dynamics, which are likely to have impacted the responses. The impact of these dynamics was mitigated to an extent as the participants were not used to discussing picturing, and therefore not seeking to provide a ‘correct answer’ based on previous knowledge; they were also encouraged by the participatory approach to see their views as valid and important. However, those dynamics were undoubtedly still present and likely to have restricted responses, particularly in the early sessions. Additionally, self-reporting of experiences inevitably leads to some inaccuracies or omissions. This was especially the case as all data relating to picturing came from the unstructured interview discussions rather than other data collection methods, and as such represents the participants’ recent memories of their picturing.

The data was analysed with content analysis (Schreier, 2014), using the constant comparison method (Glaser & Strauss, 1967), which led to an iterative approach to interviews as new topics were raised or discarded based on the current data. Once all data was collected I undertook two rounds of coding: an initial open round to generate codes, followed by a closed round using the codes generated and consolidated in the first round (Charmaz, 2014). Hypotheses were developed from the participants’ responses to the first book, The Imaginary (Harrold & Gravett, 2015), and then tested against the responses to the subsequent two books in order to develop theories.

This research was conducted in accordance with the British Educational Research Association’s ethical guidelines (BERA, 2018), and was approved by the ethical review of the Faculty of Education at the University of Cambridge. All data was collected and stored in line with the General Data Protection Regulation (2018). To balance safeguarding with recognition of the contributions of the participants, each participant chose whether to be referred to in the research by their own first names or chose their own pseudonym. Last names have not been included, and the school is not identifiable from its description.
Discussion of findings

The findings are split into two main sections based on the dominant themes from the data: explorations of illustrations scaffolding the picturing process; and instances where illustrations interacted with existing mental pictures. Responses to The Imaginary (Harrold & Gravett, 2015) are cited as TI, responses to The Midnight Zoo (Hartnett & McNaught, 2010) are cited as TMZ, and responses to Not As We Know It (Avery & Grove, 2015) are cited as NAWKI. The number of the interview for that book is also included in the citation for reference where relevant.

Illustrations scaffolding the picturing process

A major area of investigation was the potential for illustrations to scaffold the mental picturing process, as suggested in research by Graham (1990) and my earlier research on A Monster Calls (Aggleton, 2017). The findings from this research provide additional evidence which supports and clarifies the role of illustrations in novels in this process.

Natural picturing tendencies

Alexander, Amy and Sophia regularly commented that they found the illustrations useful in scaffolding their mental picturing. Alexander, who commented the most frequently about the illustrations supporting his picturing, reported that he did not have naturally strong picturing abilities, and often found it hard to picture characters and settings in books he had not previously read (TI:1). By providing an image for him, the illustrations helped to clarify details about the characters, setting and objects within the story, which he described on many occasions as being useful to his reading. Leo, who reported having very strong natural picturing abilities, also commented that the illustrations helped him to visually imagine the books, but to a noticeably lesser extent than the other participants.

However, whilst all the participants commented at some point that the illustrations had aided them in creating mental pictures, it was not simply the case that those with weaker picturing abilities reported this scaffolding more frequently than those with stronger picturing abilities. Like Alexander, Nicole reported that she did not have strong mental picturing abilities, saying that she often did not mentally picture when reading, although she sometimes began to picture a book once she had got about half way through (TI:1), reflecting the individual nature of picturing and the inconsistency of picturing throughout a book (Brosch, 2017; Kuzmicova, 2014; Rokotnitz, 2017; Wilson, 2012). Early on in the study she commented that illustrations might potentially be helpful in aiding picturing, commenting that they could:

Show you what it looked like, if you didn’t have an idea in your head, so you could actually see it, sort of a picture of it (TI:1, lines 204–206).

Interestingly, however, she did not feel that this had actually happened to her at this point during her reading, as she had not spent enough time looking at the illustrations for them to provide her with a mental picture of what was happening in the story (TI:1). Nicole did mention the illustrations supporting her picturing process on other occasions throughout the study, but more often stated that she had no mental image of the books (though she did not think this hindered her reading process or enjoyment of the books).
Correspondingly, out of all the participants, Nicole reported spending the least amount of time engaging with the illustrations, often glancing at them only briefly. Due to the method of self-reporting used for this data collection, it is impossible to state conclusively that Nicole spent less time looking at the illustrations than the other participants, or that there was a definite causational, rather than correlational, relationship with her relative lack of picturing. However, her responses do indicate the need for an amendment to the previously theorised idea that illustrations can support the picturing process when reading novels. Whilst illustrations do appear to have the potential to scaffold picturing, given that all of the participants reported this occurring, Nicole’s responses suggest that this may only be the case provided that a reader gives enough attention to the illustrations in order to be able to make use of the image as part of their own reconfiguring of experience when creating mental pictures (Mendelsund, 2014; Sadoski et al., 1990; Speer et al., 2009).

**Familiarity and unfamiliarity**

The likelihood of illustrations scaffolding the picturing process also seems to have been influenced by factors around familiarity and unfamiliarity. Sophia discussed how familiar spaces often found their way into her mental images:

> I normally imagine it in a place that I know, because sometimes when I imagine classrooms, it seems to be in my house, and when I imagine outside, it seems to be in the forest and by a hill. (NAWKI:1, lines 242–245)

These reported experiences correspond with the current research on picturing which foregrounds the importance of personal experience in the development of mental imagery (Dekker et al., 2014; Sadoski et al., 1990; Speer et al., 2009). This familiarity seems to include not only lived experience, but also the experiences of the book so far, as seen in this comment from Sophia, when discussing an illustration of Rudger, the protagonist of *The Imaginary*, in front of a tree (p. 76):

> Well when it said under a tree, you can’t really make a different tree to any other tree so [. . .] Trees look all the same so, you would have imagined a tree like that. Like the bushy bit at the top and the thing [gestures to trunk]. But you could have imagined, because it said he was leaning against the tree, and having a rest, you’ve seen Rudger before in the book, so you could imagine what Rudger looked like, and then put him against the tree so you can make the picture in your head. (TI:2, lines 379–399)

The familiarity that Sophia had with trees, as well as her previous encounters with images of the character Rudger, seemed to make it easier for her to picture this part of the book. Where there were elements of the book which were unfamiliar, however, such as the character of Mr Bunting, and the imaginary friends in the library, she found them very hard to picture and felt that the illustrations supported her ability to imagine what they looked like (TI:1,2). The importance of familiarity and experience may also explain why Sophia reported her picturing as getting stronger the further she read, and seems to have been at least partially based on the illustrations she had already seen, such as in the discussion of Rudger earlier.

Other participants also commented on illustrations being particularly useful in helping them to picture the unfamiliar. When reading *Not As We Know It*, both Alexander and Leo commented on an illustration of a Walkman being particularly
helpful, as they had never seen a Walkman and so found it hard to imagine without an illustration (Alexander, NAWKI:3; Leo, NAWKI:4). Similarly, when Amy came across a character in The Imaginary which resembled a gramophone (pp. 90–91), she stated that without the illustration she would not have been able to picture the character (T1:5). Amy also discussed finding it difficult to imagine the character of Leonard, who was a fantastical creature which was half man and half fish, and therefore unfamiliar to her (NAWKI:1). Sophia similarly discussed finding it difficult to picture Leonard because he was not the same as mermaids she was familiar with from other texts (NAWKI:1).

This influence of familiarity and unfamiliarity on the picturing process suggests that whilst illustrations can support the picturing process at any point, they may be more likely to scaffold automatic picturing when a reader is unfamiliar with an object, character or setting, and therefore cannot draw on their own experience to create a mental picture.

**Textual individuality**

The individual nature of an illustrated novel also appears to influence how illustrations support the picturing process. The participants’ comments on picturing in The Midnight Zoo were starkly different to the responses to the other two novels.

The responses to The Imaginary and Not as We Know It support and extend Graham’s (1990) findings, which suggest that illustrations have the potential to aid the generation of mental pictures. In their responses to The Midnight Zoo, however, Alexander only once commented that an illustration had supported his mental picturing, whilst Amy felt that she did not picture at all, unlike with the other books where she reported picturing frequently. Leo said that one illustration in The Midnight Zoo was different to his own mental picture, but did not discuss the illustrations supporting his picturing process. By contrast, Leo frequently mentioned the illustrations in The Imaginary and Not As We Know It supporting his picturing process. Neither Sophia nor Nicole commented on picturing during their responses to The Midnight Zoo at all, though Sophia frequently discussed picturing in the other texts. Nicole reported that she did not tend to picture when reading, but did mention a few illustrations in The Imaginary and Not As We Know It had helped her to imagine what the scene looked like.

The illustrations in The Midnight Zoo may have been less successful in supporting the picturing process due to their more reductive and less representational style, as they are largely composed of silhouettes with few details and a small number of components per illustration. When discussing the illustrations in Not As We Know It, which include both representational illustrations but also reductive silhouettes, Amy said that early silhouette illustrations had not given her a mental picture of the characters, but that later representational illustrations had (NAWKI:3). In discussing a representational illustration which she felt contradicted an earlier one, and interfered with her mental picture, Amy even commented:

> Once you’ve had one big reveal it’s probably better to have it less detailed, if it’s not the same picture every time. (NAWKI:3, lines 701–706)
Similarly, Leo stated that it was easier for him to imagine something if the description and the illustration were detailed, as he felt he was only able to partially imagine the character of Leonard from a silhouette (NAWKI: 1). These comments indicate that, for Amy and Leo at least, the more complex and representational illustrations were more successful at scaffolding their picturing process than were the less detailed and more reductive illustrations.

This impact of style on mental picturing may be due to the relative amount of information provided by the differing illustrative styles. The production of mental pictures relies on a reader’s ability to recombine known information with former experiences in order to generate a mental image (Mendelsund, 2014; Sadoski et al., 1990; Speer et al., 2009), and therefore it is not surprising that this process might be more difficult when a reader is presented with little information if they do not have previous visual experience of what is being discussed in a text. Given the sharp distinction between the large number of comments in responses to The Imaginary and Not As We Know It which described illustrations supporting picturing, and the single comment from Alexander reporting that an illustration had supported his picturing in The Midnight Zoo, it seems likely that the reductive illustrations in The Midnight Zoo were less successful at providing the necessary information to support picturing than the more detailed and representational illustrations of The Imaginary and Not As We Know It.

It is also possible that the relative lack of comments about picturing partially reflected that The Midnight Zoo had fewer illustrations than the other books. Alexander commented that he would have preferred for The Midnight Zoo to have more pictures to make it easier to understand (TMZ: 1), whilst Amy commented on Not As We Know It that:

I like how they have a lot more pictures so I can kind of imagine it. (NAWKI: 1, lines 52–54)

However, only Amy and Alexander made comments about the number of illustrations influencing picturing. Sophia and Leo, who both reported strong picturing tendencies, did not find the relative lack of illustrations in The Midnight Zoo problematic (Sophia, TMZ:5; Leo, TMZ:1), whilst Nicole, who rarely had mental pictures, but did not feel that picturing was an important part of her reading process, also did not think it hindered her reading to have fewer illustrations (TMZ:1,3). These responses may also have reflected the participants’ personal visual experiences as well as their picturing tendencies, as picturing not only varies between individuals, but also works with information either present or previously experienced. It is therefore possible that a greater number of illustrations is more helpful for readers with weaker picturing skills or little personal visual experience of the topic at hand, and who value picturing as part of the reading process, than for those with strong picturing abilities, relevant visual experience, or who do not find picturing especially useful.

Illustrations and existing mental pictures

There were occasions when the illustrations interacted with the mental pictures the participants had already generated, and there were disparities between the two images. Amy described this experience, commenting about her picturing:
Usually, if there’s quite a lot of description sometimes . . . and then if there is actually a picture, I don’t think that’s what it looked like. (TI:1, lines 43–45)

Alexander, Leo and Sophia also reported occasions when an illustration was in conflict with their own mental picture of a scene. These discrepancies between their own mental pictures and the illustrations influenced their reading in a number of ways.

Replacement
For Alexander, the illustrations always replaced his mental pictures if there was a conflict, and generally he felt this helped him to imagine the story more accurately. On one occasion, he felt that his mental picture of Leonard, the half-man half-fish character, was better than the one in the illustration, which he felt was a bit simple. However, even though he thought that his mental picture was better, he also characterised it as ‘completely wrong’, and commented:

Yeah, because I was thinking about what the sea creature would have been like, and my idea of it; but when I saw like the sea creature itself it completely pushed my idea away. (NAWKI:2, lines 287–289)

Alexander’s experience reflects that of the introspective research of Bettelheim (1976) and Mendelsund (2014), who consider illustrations in novels to be an imposition on the reader’s own mental pictures, and a hindrance to the picturing process. For Alexander, the text held authority over his own interpretations, so whilst the illustrations did undoubtedly impose an image over his own, he did not consider this a hindrance to his picturing process, but rather a support.

Enhancement
Amy, Leo and Sophia had a more mixed experience with conflicting illustrations. They all reported instances where the illustrations had replaced their own mental pictures, as Alexander experienced, but they also discussed times when the illustrations had enhanced their own pictures by adding details (Amy, TI:1,2, NAWKI:3; Leo, TI:2,3, NAWKI:3; Sophia, NAWKI:1). Leo described this experience as the illustration ‘expanding’ what he had already imagined (Leo, NAWKI:4), whilst Sophia felt that it created a ‘mixture’ between her mental picture and the illustration (NAWKI:1). Whilst reading The Imaginary, Leo reported incorporating the illustrations into his own mental picturing, so that characters began to be pictured in the same way they appeared in the illustrations (TI:2,3). Leo did not appear to view this as an imposition, but rather as a natural development, reflecting the inconsistent nature of picturing throughout the experience of reading a book (Brosch, 2017; Kuzmicova, 2014), as well as the way in which readers recombine their experiences in order to develop mental pictures (Mendelsund, 2014; Sadoski et al., 1990; Speer et al., 2009). This ‘recombining’ that the participants reported also reflects Iser’s (1980) notion of reframing one’s understanding of a book based upon new information, as the participants were recreating their mental pictures in light of new information, just as they altered their ideas about the characters and narrative as they progressed through the books.
Alternatives
There were also occasions when the illustrations conflicted with the participants’ mental pictures, but the participants continued to imagine the scene with their own mental image (Amy, TI:1,2, NAWKI:3; Leo, TI:1,2, TMZ:3, NAWKI:3; Sophia, NAWKI:1). Leo felt that these conflicting images – which neither enhanced nor replaced his own picture – were providing an alternative perspective, commenting:

Yeah, it’s sometimes just a different way of looking at it, and that one, I kind of . . . well, you can’t imagine wrong, what you imagine is what you imagine. (TMZ:3, lines 168–169)

Unlike Alexander, who felt strongly that the illustrations in the book were the ‘correct’ version, Leo was more likely to consider them as a suggestion. It is possible that this attitude towards the authority of the text is why all of Alexander’s mental pictures were replaced whilst only some of Leo’s were, but this cannot be asserted with any confidence based on the limited data available from this study.

Accuracy and position
Amy’s experience of conflicting illustrations also seemed to be influenced by her confidence in the accuracy of her mental pictures. On pages 8–9 of The Imaginary, an illustration of a wardrobe was similar to Amy’s mental picture of it, but it provided further details which she hadn’t pictured, such as the decorations on the wardrobe door (TI:1). In this instance, Amy said she found these discrepancies helpful to her in imagining the scene. However, in another case within the same book, an illustration of Mr Bunting and his imaginary friend (p. 21), Amy dismissed the depiction in the illustration as she felt her mental picture was more accurate to the writing, and ascribed the difference to the technical difficulty of illustrating the scene, commenting:

They probably just couldn’t like, show it very well, since the sleeve’s up there. (TI:1, lines 479–480)

Where Amy was confident that her mental picture was ‘accurate’, she was less likely to accept the visual depiction in the illustration. However, where she was uncertain, or where the differences augmented rather than conflicted with her picture, Amy was happy to accept the detail provided by the illustration. Additionally, the interaction between her differing mental picture and the illustration did not always lead Amy to having a certain outcome about whether a depiction was ‘correct’ or ‘incorrect’, as she commented that she did not necessarily think one version was better than another (TI:2).

For Sophia, accuracy of depiction was less important to retaining her own picture than the position of the illustration within the novel. Sophia commented that she was more likely to retain her own mental picture when a conflicting illustration came later in the book, saying:

Probably because grandad was, like, right from the start of the story, so I was imagining him like that and I couldn’t really get that one into my head. (NAWKI:1, lines 898–899)

By contrast, other participants made no comments about location, and their responses to conflicting illustrations appear to show no correspondence to location across the books. This suggests that the position of the illustration within the book may only have been significant for Sophia.
Prompting creative responses

Amy, Leo and Sophia’s reports of illustrations running parallel to their own mental pictures seems to have impacted on their experiences of reading by encouraging them to engage critically and creatively with the books by demonstrating ‘possibility thinking’, which centres around questioning and the generation of possibilities as a creative act (Craft, 2000). Cremin, Chappell, and Craft (2013) identify narratives as providing a ‘possibility space’ (p. 149) which can inspire children’s questions and imagination, and this possibility space seems to be particularly prevalent where readers experience conflicts between their own mental images and illustrations. Amy weighed up the reasons for differences between her mental pictures and the illustrations, considering not only narrative possibilities (NAWKI:3), but also technical construction possibilities (TI:1). For Leo, alternate possibilities appear to have been linked to how great a difference there was between the illustration and his mental picture. Where the differences between his own picturing and the illustration were minor, such as with an illustration of a wardrobe (The Imaginary, pp. 8–9), Leo said he didn’t think that the illustrations made a big difference as to how he felt about what was going on in the book (TI:1). However, where the differences were more significant, he commented that the illustrations changed his views about the book, both in terms of what things looked like and in terms of what was happening and the reasons for those occurrences (TI:2,3, TMZ:3, NAWKI:3). These reports suggest that illustrations which differ from readers’ mental images may be able to prompt a reconsideration of initial interpretations, encouraging deeper explorations of and greater critical and creative engagement with illustrated novels. However, the interactions of conflicting illustrations and mental images were not predictable in their outcomes within this study, so it is not possible to surmise when and why these disparities might prompt this further engagement with the text.

Summary of findings

From these findings the following answers can be given to the research question:

What can be learned about the nature of picturing when reading illustrated novels from the reports of five 9-10-year-old participants?

This research expands upon and empirically corroborates findings from the fields of neuroscience and cognitive poetics by demonstrating that not only do individuals have differing picturing tendencies when reading illustrated novels, but that these tendencies can vary not only within texts as previously identified, but also between different texts, depending on the style and possibly the number of illustrations included. Additionally, this research indicates that it is not only the natural tendency of readers to mentally picture, which influences the picturing experience, but also the attitudes and behaviours of individual readers. The amount of attention given to illustrations seems likely to have an influence on the picturing process, as well as views as to the authority of the text or the ‘accuracy’ or mental images or illustrations.

The findings also confirm but complicate Graham’s (1990) and Nodelman’s (1988) suggestions that illustrations can scaffold the picturing process for readers with weaker picturing skills. Whilst illustrations do seem to support picturing, this appears to happen with readers of all levels of picturing abilities. This study also extends previous theories
about picturing relying on the reconfiguring of individual experience together with current information (Sadoski et al., 1990; Speer et al., 2009) into the narrative realm, by showing that readers find it harder to picture unfamiliar elements of narratives, and that in the cases of unfamiliar objects, characters and settings, illustrations can be especially helpful in supporting the picturing process. However, the role of illustrations in scaffolding picturing also appears to be at least somewhat dependent upon the style of illustration, with more detailed and representational illustrations being more likely to aid picturing than less detailed, reductive illustrations.

The impact of illustrations on existing mental pictures shown in this study is far more complex and positive than has previously been argued (Bettelheim, 1976; Mendelsund, 2014). Whilst there were instances in which the participants reported the illustrations replacing their own pictures, these replacements were not generally viewed as negative, but rather as a welcome support. The participants regularly mentioned enjoying the illustration’s differences, or viewed them as an improvement upon their own pictures. Moreover, the illustrations in the novels did not always replace the participant’s own mental pictures, but were able to enhance or run parallel to them as well. Far from reducing a reader’s imaginative capacity, conflicting illustrations and mental pictures frequently seem to lead to opportunities for critical and creative explorations of illustrated novels through possibility thinking.

Conclusions

The findings from this research strongly challenge the existing narrative that illustrations are detrimental to the automatic picturing process and the experience of reading novels. Rather, the potential impact of illustrations on mental picturing needs to be understood as a complex, but largely productive, relationship. Whilst it is not currently known to what extent or how teachers are using illustrated novels in classrooms, this study highlights some of the possibilities and considerations of using the medium. These findings suggest that the potential of illustrations to interact with mental pictures should be embraced by practitioners as an opportunity for growth, enjoyment, and increased criticality and creativity.

When selecting illustrated novels, practitioners may wish to be mindful of concerns around illustrative style. Novels with detailed and representational illustrations may be more likely to support picturing. Resisting the idea of textual authority during discussions may also help to maximise critical and creative responses, if readers are encouraged to view differences between their own mental images and the illustrations as a starting point to consider multiple possibilities. These findings also imply that teachers seeking to use visualisation as part of comprehension activities (Garnham & Oakhill, 1992; Keene & Zimmermann, 2007) will need to be aware of and plan for the unpredictability of their pupils’ ability to mentally picture, depending upon their personal characteristics and the nature of the texts they are using. It is also key to ensure that readers’ attention is directed not only to the writing, but to the illustrations as well.

The picturing process is only one facet of the unique medium of the illustrated novel. It is hoped that further research into these overlooked texts will demonstrate other affordances which may be of benefit to readers and educational practitioners.
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References

Aggleton, J. (2017). ‘What is the use of a book without pictures?’ An exploration of the impact of illustrations on reading experience in A Monster Calls. Children’s Literature in Education, 48(3), 230–244.

Avery, T., & Grove, K. (2015). Not as we know it. London: Andersen Press.

Benton, M., & Fox, G. (1985). Teaching literature: Nine to fourteen. Oxford: Oxford University Press.

BERA. (2018). Ethical guidelines for educational research, fourth edition. Retrieved from https://www.bera.ac.uk/publication/ethical-guidelines-for-educational-research-2018

Bettelheim, B. (1976). The uses of enchantment: The meaning and importance of fairy tales. Hamondsworth: Penguin.

Bloor, M., & Wood, F. (2006). Keywords in qualitative methods. London: SAGE. Retrieved from http://srmo.sagepub.com/view/keywords-in-qualitative-methods/SAGE.xml

Brosch, R. (2017). Experiencing narratives: Default and vivid modes of visualization. Poetics Today, 38(2), 255–272.

Charmaz, K. (2014). Constructing grounded theory (2 ed.). London; Thousand Oaks, CA: SAGE.

Clark, A. (2013). Whatever next? predictive brains, situated agents, and the future of cognitive science. Behavioural and Brain Sciences, 36(3), 181–204.

Craft, A. (2000). Creativity across the primary curriculum: Framing and developing practice. London: Routledge.

Cremin, T., Chappell, K., & Craft, A. (2013). Reciprocity between narrative, questioning and imagination in the early and primary years: Examining the role of narrative in possibility thinking. Thinking Skills and Creativity, 9, 135–151.

Dekker, T. M., Mareschal, D., Johnson, M. H., & Sereno, M. I. (2014). Picturing words? Sensorimotor cortex activation for printed words in child and adult readers. Brain and Language, 139, 58–67.

Fry, D. (1985). Children talk about books: Seeing themselves as readers. Milton Keynes: Open University Press.

Garnham, A., & Oakhill, J. (1992). Discourse processing and text representation from a ‘mental models’ perspective. Language and Cognitive Processes, 7(3–4), 193–204.

Gee, J. (2000). Discourse and sociocultural studies in reading. In M. L. Kamil, P. B. Mosenthal, P. D. Pearson, & R. Barr (Eds.), Handbook of reading research (Vol. 3). New York: Routledge 195–208.

Gee, J. (2008). Social linguistics and literacies: Ideology in discourses (3 ed.). London /New York: Routledge.

General Data Protection Regulation. (2018). Retrieved from GOV.UK website: https://www.gov.uk/government/publications/guide-to-the-general-data-protection-regulation
Glaser, B., & Strauss, A. L. (1967). *Discovery of grounded theory: Strategies for qualitative research.* Chicago: Aldine Transaction.

Graham, J. (1990). *Pictures on the page.* Sheffield: National Association for the Teaching of English.

Harrold, A. F., & Gravett, E. (2015). *The imaginary.* London: Bloomsbury Children’s Books.

Hartnett, S., & McNaught, J. (2010). *The midnight zoo.* London: Walker Books.

Hume, D. (1784). *An enquiry concerning human understanding.* Simon & Brown.

Iser, W. (1980). *The act of reading: A theory of aesthetic response* (New ed.). Baltimore, MD: Johns Hopkins University Press.

Keene, E. O., & Zimmermann, S. (2007). *Mosaic of thought: The power of comprehension strategy instruction* (2nd ed.). Portsmouth, NH: Heinemann Educational Books.

Kuzmicova, A. (2014). *Literary narrative and mental imagery: A view from embodied cognition.* *Style, 48*(3), 275–293.

Kuzmičová, A., & Bálint, K. (2019). *Personal relevance in story reading: A research review.* *Poetics Today, 40*(3), 429–451.

Kuzmičová, A., & Cremin, T. (2021). Different fiction genres take children’s memories to different places. *Cambridge Journal of Education, 52*(1), 37–53.

Mackey, M. (2019). *Visualization and the vivid reading experience.* *Jeunesse: Young People, Texts, Cultures, 11*(1), 38–58.

Marshall, M. (1988). *An introduction to the world of children’s books* (2nd Revised ed.). Aldershot; Brookfield: Scolar Press.

Mendelsund, P. (2014). *What we see when we read.* New York: Vintage Books.

Nodelman, P. (1988). *Words about pictures: The narrative art of children’s picture books.* Athens, GA: University of Georgia Press.

Noyes, A., & Keeping, C. (1981). *The highwayman.* Oxford: Oxford University Press.

Paivio, A. (1978). *Imagery and Verbal Processes.* Hillsdale, NJ: Psychology Press.

Paivio, A. (2007). *Mind and its evolution: A dual coding theoretical approach.* Mahwah, NJ: Psychology Press.

Plato. (2007). *The republic* (H. D. P. Lee & D. Lee, Trans.). London: Penguin Classics.

Rokotnitz, N. (2017). Goosebumps, shivers, visualization, and embodied resonance in the reading experience: The god of small things. *Poetics Today, 38*(2), 273–293.

Rosenblatt, L. M. (1938). *Literature as exploration* (5th ed.). New York: Modern Language Association.

Rosenblatt, L. M. (1978). *The reader, the text, the poem: The transactional theory of the literary work.* Carbondale, IL: Southern Illinois University Press.

Russell, B. (1921). *The analysis of mind.* McLean: IndyPublish.

Sadoski, M., Goetz, E. T., Olivarez, A., Lee, S., & Roberts, N. M. (1990). Imagination in story reading: The role of imagery, verbal recall, story analysis, and processing levels. *Journal of Reading Behavior, 22*(1), 55–70.

Sadoski, M., & Paivio, A. (2013). *Imagery and text: A dual coding theory of reading and writing* (2nd ed.). New York: Routledge.

Schreier, M. (2014). Qualitative content analysis. In U. Flick (Ed.), *The SAGE handbook of qualitative data analysis* (pp. 170–184). SAGE Publications Ltd. doi:10.4135/9781446282243.n12

Snow, C. E. (2002). *Reading for understanding: Towards an R&D program in reading comprehension.* Retrieved from http://www.rand.org/content/dam/rand/pubs/monograph_reports/2005/ MR1465.pdf

Snow, C. E., & Sweet, A. P. (Eds.). (2003). *Rethinking reading comprehension.* New York: Guilford Press.

Speer, N. K., Reynolds, J. R., Swallow, K. M., & Zacks, J. M. (2009). Reading stories activates neural representations of visual and motor experiences. *Psychological Science, 20*(8), 989–999.

Thomas, N. J. T. (2014). The multidimensional spectrum of imagination: Images, dreams, hallucinations, and active, imaginative perception. *Humanities, 3*(2), 132–184.

Tolkien, J. R. R. (1964). On fairy stories. In J. R. R. Tolkien, *Tree and leaf* (pp. 1–82). London: George Allen & Unwin.

Tye, M. (1991). *The imagery debate.* Cambridge, MA: MIT Press.
Wilson, D. (2012). Training the mind’s eye: ‘Brain Movies’ support comprehension and recall. The Reading Teacher, 66(3), 189–194.

Wittgenstein, L. (1953). Philosophical Investigations. (4th ed; Hacker, P. M. S., & Schulte, J. Eds.) Chichester/ Malden, MA: Wiley-Blackwell.

Woodhead, M., Faulkner, D. (2008). Subjects, objects or participants? Dilemmas of psychological research with children. In P. Christiansen & A. James (Eds.), Research with children: Perspectives and practices (2nd ed., pp. 10–39). Abingdon: Routledge.

Zeman, A., Dewar, M., & Della Sala, S. (2015). Lives without imagery – Congenital aphantasia. Cortex, 73, 378–380.