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Research paper

"They all look mad with each other": Understanding the needs and preferences of children and parents in AI-generated images for stories

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ABSTRACT

Stories play an important part in children's daily life—they aid literacy and learning, foster creativity and imagination, and create opportunities for children to connect with others. Visual content, such as illustrations and images, especially enhance children's understanding and engagement with stories, as well as their interactions with others through reading or storytelling. Our research explores how AI-generated images in stories influence interactions in story-related activities and what qualities children and parents value in these generated images for stories. We conducted a qualitative study with 13 groups of parents and children between the ages of 4 and 8, where we observed how children and parents interact over stories with AI-generated images, collected their preferences, and interviewed parents about their needs and concerns on different qualities in generated images (e.g., visual style, consistency, authenticity, safety). Our work contributes empirical insights that can inform the design and evaluation of AI-empowered story related applications.

1. Introduction

The rise of multimodal large models has made AI-generated images a widespread practice. Tools such as *DALL-E*[1], *Midjourney*[2], and *Stable Diffusion*[3] provide opportunities to generate creative visual expressions with reduced costs and greater accessibility. For example, people use these tools to create illustrations for stories, design covers for podcasts, or add visuals to written reports. In these cases, visuals play an important role—they help make written narratives more engaging, improve understanding, and spark creativity (Safinah & Devi, 2021; Zhao et al., 2024). This is especially true for children, who often rely on images and visuals to follow stories and connect with the content. When parents read with their children, detailed drawings and pictures can make the experience more interactive and enjoyable, helping keep the child's attention, and encourage discussions about the story (Yuling et al., 2024).

Visuals are important for younger children, who often rely on illustrations and other visual content to enhance their understanding, imagination, and emotional connection to a story (Costin, 2024; Glenberg & Langston, 1992; Takacs & Bus, 2016). Well-designed visuals can guide children's attention to key elements of a story to build mental models, stimulate imaginative thinking, and maintain engagement throughout the reading experience (Glenberg & Langston, 1992). These benefits are further amplified in dynamic storytelling scenarios, where children interact with stories alongside parents or caregivers (Yuan, Genatempo, Jin, & Yarosh, 2024). In such contexts, the details in illustrations help narrators captivate their audience, fostering deeper interaction and encouraging co-creation between narrators and listeners. For example, a parent might use visual prompts to ask questions, elicit predictions, or collaboratively expand on a story, turning storytelling into a more interactive and participatory activity (Ezell & Justice, 1998; Riojas-Cortez & Whitlock, 2019).

Researchers have recognized the potential of AI-powered technologies in children's story-related experiences, particularly in storytelling and reading. A growing body of work has explored innovative systems that leverage AI to assist with storytelling, such as tools that generate narratives, create illustrations, or enable interactive storytelling experiences (Fan et al., 2024; Han & Cai, 2023; Yuling et al., 2024). Some recent research has begun to investigate how families interact with AI-driven storytelling tools and the potential benefits and risks they introduce (Yu, Sharma, Hu, Wang, & Wang, 2024; Yuling et al., 2024). For example, Sun et al. examined parents' and children's needs and concerns regarding AI's role in interactive storytelling and reading

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[1] https://openai.com/dall-e.
[2] https://www.midjourney.com/.
[3] https://stability.ai/stable-diffusion.

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activities (Yuling et al., 2024). Building on this line of empirical work, our study, unlike prior work that focuses on general AI technology or specific AI systems, explores parents' and children's needs, practices, and concerns regarding AI-generated images in storytelling and reading activities. Specifically, we conducted a qualitative study involving child–parent reading sessions with pre-generated AI and human-created images to address the following research questions:

- (**RQ1**) What aspects of visual elements do children and parents value in AI-generated images for storytelling and reading activities?
- (**RQ2**) What are parents' attitudes and concerns regarding AI-generated images in children's stories?

By examining these questions, we aim to uncover the considerations necessary for designing AI-generated images that better support storytelling and reading experiences. Our findings contribute to the HCI and IDC communities by providing empirical insights into how families engage with generative AI technologies and by offering design implications for building tools that align with the values of both children and parents.

2. Related work

2.1. Generative AI for children's storytelling and reading

With the rapid development of generative AI (GAI), there has been a growing interest in exploring their usage and impact on children (Safinah et al., 2021). Unlike other AI technologies focused on decision making or recommendations, GAI can produce creative output, such as images, text, music, videos, and various other forms of design (Kosoy, Jeong, Sinha, Gopnik, & Kraljic, 2024). This creative potential makes GAI particularly suited for enriching children's storytelling and reading experiences. Those AI models can be tailored to children's developmental needs, as child-directed speech and creativity differ from adults', shaped by their reliance on adults for cultural and social context (Hills, 2013; Newman et al., 2024; Organisciak, Newman, Eby, Acar, & Dumas, 2023; Yarosh et al., 2018), offering benefits such as enhancing engagement, fostering imagination and cultural and emotional awareness (Chang & Huang, 2016; Han & Cai, 2023; Newman et al., 2024), developing literacy (Druga, Vu, Likhith, & Qiu, 2019; Ong, De Jesus, Gilig, & Ong, 2024), and supporting co-creative activities between children and parents or among children (Fan et al., 2024; Zhang et al., 2022). For example, Gordon and Breazeal created a story-creation tablet game integrated with GAI to develop word-reading skills for children aged 4–8 (Gordon & Breazeal, 2015). Ruan et al. took advantage of advances in chatbot technologies to develop a scalable virtual reading companion that can turn any reading material into interactive conversation-based English lessons to support foreign language learning (Ruan et al., 2019). Kantor et al. developed a web-based automated reading tutor called *Reading Companion* to enable a globally distributed community to create and share reading materials, utilizing a speech recognizer tailored for children (Arthur et al., 2012). Those virtual tutors can detect reading miscues and provide appropriate interventions, allowing children to read more advanced material.

For storytelling and story creation, GAI systems generate narratives, visuals, and interactive elements, ranging from individual engagement (e.g., *AI Stories* (Han & Cai, 2023) and *LYRA* (Choi, 2019)) to co-creation tools like *StoryPrompt* (Fan et al., 2024), which enable children to collaboratively create stories with AI. Those AI-powered reading or storytelling systems can also be integrated into robots, creating physical presences that provide voice-based and embodied feedback (Bono, Augello, Pilato, Vella, & Gaglio, 2020; Costa, Brunete, Bae, & Mavridis, 2018; Massung et al., 2015; Philipp & T., 2018; Shen & Lin, 2018; Wicke & Veale, 2021). For example, *Tega*, a socially assistive robot, uses GAI to provide personalized reading support, helping children build confidence in their reading and creative abilities in early-literacy education (Westlund et al., 2016). Similarly, *Moxie*, a conversational robot, uses GAI to engage children in interactive storytelling activities, fostering both literacy development and imaginative thinking (Montalvo et al., 2022).

However, child-AI collaboration requires careful consideration of its limitations and potential risks (Druga et al., 2019; Kim, Lee, & Cho, 2022; Kocher, 2020; Neugnot-Cerioli & Laurenty, 2024; Repenning, 2006). Large-scale deployment and long-term usage of these GAI-based reading and storytelling systems remain limited, and studies have called for further investigation into how GAI systems are perceived and used by their intended users, as well as the associated ethical concerns (Sun et al., 2024). In our study, we specifically focus on the usage and ethical concerns AI-generated visuals in storytelling and reading activities, rather than general AI-based storytelling technologies (e.g., Sun et al. (2024)) or specific story robots or systems (e.g., Han and Cai (2023) and Lin et al. (2021)).

2.2. Generative AI for visual content creation for children

Research indicates that visual elements in children's stories play a crucial role in improving comprehension, imagination, and emotional engagement (Aman & Antima, 2021; Costin, 2024). Illustrations serve as pedagogical tools that support reading comprehension and foster imagination (Costin, 2024). They guide children's attention to important story elements, improving understanding (Takacs & Bus, 2016). Illustrated storybooks also effectively evoke emotional responses, foster environmental awareness (Wang, Zhao, Kleek, & Shadbolt, 2024), and enhance the recall of children's stories (Greenhoot, Beyer, & Curtis, 2014).

With the rise of multimodal AI models (e.g., *DALL-E*, *Midjourney*), visual generation has shown significant potential to produce illustrations for story content. Recent work has introduced child–AI storytelling systems that use generative models to enhance the visual aspects of narratives. For instance, *Colin* (Ye, Jiang, Liu, Ran, & Chang, 2025) scaffolds children's storytelling by suggesting continuations and generating illustrations from their drafts. *AIStory* (Ariel, Seungmin, Korea, & South, 2023) combines AI-generated images with predefined stickers (e.g., characters, facial expressions) to help children compose visual stories. *StoryDrawer* (Zhang et al., 2022) goes further by converting children's live narration into AI-generated drawings in real time. These systems show how generative AI can enrich story visualization and engage children through visual cues, which support comprehension and connection to the narrative, but they focus on content creation rather than shared reading practices. Some GAI systems also support co-creation experiences with parents or peers. *StoryPrompt* (Fan et al., 2024) enables children to work as pairs to co-create stories and comics with GAI, providing both verbal (text) and non-verbal (visual) prompts to inspire creativity and learning. *StoryBuddy* (Zhang, Xu et al., 2022) is an AI-enabled system designed to facilitate interactive storytelling between parents and children. The system allows parents to collaborate with AI to generate question-answer pairs tailored to the story content, aiming to enhance children's engagement and comprehension during storytelling sessions. These studies highlight the role of AI-generated visuals in enhancing children's storytelling and reading experiences. However, few have explored parents' and children's preferences and concerns regarding AI-generated visual content—a gap our study aims to investigate.

2.3. Parents' needs and ethical concerns around generative AI

Parents play a vital role in shaping children's interactions with technology (Brigid & C., 2009; Dicky, Cici, Celly, Deviana, & J., 2022; Suud, 2023) and are often regarded as the primary gatekeepers responsible for protecting their children in the digital world (M., K., & Kathleen, 2021; Shmueli & Blecher-Prigat; Sun et al., 2021). There are many systems that encourage active parent–child exploration and storytelling during

shared book reading (e.g., *TinkRBook* (Angela et al., 2012), *StoryBuddy* (Zhang, Xu et al., 2022), *TaleMate* (Daniel, Sulakna, Jisun, Sang, & Koeun, 2023)) as parent involvement impacts children's language development, emergent literacy, and reading achievement (Saracho & Spodek, 2010). While parents generally view using GAI in story reading and storytelling positively, they express concerns about their limitations and potential impacts on parent–child interactions (Lin et al., 2021; Sun et al., 2024), its ability to meet educational goals and adapt to children's needs (Sun et al., 2024; Zhang, Xu et al., 2022).

Parents' attitudes toward GAI are shaped by their understanding of its potential benefits and risks (Sun et al., 2024; Xu et al., 2023). Positive attitudes stem from the perceived ability of GAI to enhance creativity, provide tailored educational content, and support interactive activities such as storytelling (Sun et al., 2024). However, concerns persist about content bias, the overreliance on AI for creative tasks, and the need for age-appropriate safeguards (Han et al., 2024; Yu et al., 2024). Studies reveal that children may struggle to distinguish between AI-generated and human-created content, raising questions about authenticity and authorship (Han et al., 2024). Privacy and data security concerns are also prevalent among parents and educators (Moon, 2024; Yu et al., 2024). The lack of parental control features on GAI platforms forces parents to depend on system-provided controls, manually review histories, share accounts, and actively mediate (Yu et al., 2024).

However, these measures often fall short as parents may not always have sufficient AI literacy regarding GAI technologies, including understanding how these tools work, their limitations, and their ethical implications, which complicates effective real-time monitoring, mediation, and education (Yu et al., 2024). Studies emphasize the importance of equipping parents with the knowledge to critically assess GAI-generated content (Ng, Su, Leung, & Chu, 2023). Our study explores parents' attitudes, ethical concerns, and literacy regarding AI-generated visuals in the context of story-reading and storytelling. By understanding how parents perceive and interact with AI-generated visuals, we aim to identify design considerations that align with both children's preferences and parental values and support ethical and informed use of GAI tools in family contexts.

3. Methods

We conducted a qualitative study involving 13 parent–child groups (children aged 4–8) who participated in remote co-reading sessions using digital storybooks with pre-generated AI and human-created images. The study employed semi-structured interviews and thematic analysis to explore how families interact with and perceive AI-generated visual content in stories.

3.1. Participants and recruitment

Our study involved parent–child groups recruited through local social media platforms and snowballing from metropolitan areas in Canada. Participants were required to meet the following criteria: parents of children aged 4 to 8 who could participate in the study online together with their children, and children and parents needed to have the ability to read English. Recruitment continued until we reached data saturation, the point at which new data no longer provided significant additional insights.

The parent participants (N = 14) ranged in age from 25 to 45 years ($M = 34.2$, $SD = 5.1$). One family (F12) had two participants join the study, while all other families participated with one parent and one child. The group included nine mothers and four fathers. Five children were female and eight were male, age from 4 to 8 ($M = 6$, $SD = 1.69$). More details are provided in Table 1. All families reported reading stories with their children at least three times a week, using both digital devices and physical books. Participants were compensated with 35 CAD for their participation.

3.2. Story selection and image generation

We selected three stories for this study and participants were asked to select two of them to read during the study (selection page see Fig. 1). We chose these stories for their suitability for children aged 4–8 and to cover different themes and narrative styles: one is an animal-themed science story ("Polar Bears in the Arctic" by Yenny Suh), another is an animal fable ("The Bee and the Elephant" by Long Ravy), and the third focuses on everyday life, real-world theme ("Allie's Haircut" by Fatimah Zahra)[4].

All participants were asked to read "The Bee and the Elephant" first, and then select one additional story from the remaining two options. Each story contained nine pages of AI-generated images created using detailed textual prompts derived from the storyline. All AI-generated images and AI-augmented human-created images were generated or edited by ChatGPT-4o, designed to align with the narrative tone and aesthetics of the stories. The prompts were fine-tuned to ensure visuals reflected key elements such as character emotions, settings, and plot events (see Appendix for an example of prompts). The interface presents the story page by page, with each page displaying one generated image alongside the corresponding text (Fig. 1d). At the bottom left corner of the page (Fig. 1e), an interactive information label provides users with information about whether the image on the current page is AI-generated. The AI detector was included not to establish ground truth, as we already had full knowledge of which images were AI-generated or human-created, but rather to simulate a transparency feature that real-world platforms might provide to families. This design choice allowed us to explore whether and how parents and children notice or make use of such indicators during shared reading experiences. The classification is determined by an AI-based detector[5], which indicates the likelihood that a visual was AI-generated. The system features three levels of classification results (Fig. 2): "This image is unlikely AI-generated", "This image is possibly AI-generated", and "This image is likely AI-generated". The navigation buttons at the bottom right of the interface allow participants to navigate between pages (Fig. 1f).

3.3. Study procedure and data collection

The study was conducted remotely over *Zoom* for interviews and reading sessions. Parents received a detailed consent form that details the purpose, procedures, and data usage policies. Child participants provided verbal assent, and the study was explained in age-appropriate terms to describe AI-generated visuals. The study consisted of two main stages as follows.

3.3.1. Parent–child reading session

The study employed a 20-min co-reading session, during which parent–child pairs read and interacted with two stories. One story was mandatory and featured a mix of AI-generated images, human-created images, and partially AI-augmented human-created images. The second story was selected by the participants from two additional options, both of which contained exclusively AI-generated illustrations. Each story included 8–9 pages of narrative and images.

Participants were instructed to replicate their typical reading practices at home, discussing the stories and illustrations naturally. To maintain authentic reading interactions, we did not give explicit instructions on how parents should adapt their reading with AI-generated visuals. However, they were informed that some images were AI-generated (which could be identified through the interactive label,

[4] Full stories and content are available at the link: https://esilab-hci.github.io/ai-generated-stories/.

[5] https://openai.com/index/understanding-the-source-of-what-we-see-and-hear-online/.

Table 1
Child and parent participants' demographic information (age and gender) and their relationships. Most groups included only one parent from the family, while F12 included both parents in the session.

	Children			Parents			
Family	Participant	Age	Gender	Participants	Age	Gender	Relationship
F1	F1C	5	Boy	F1P	39	Male	Father
F2	F2C	8	Boy	F2P	36	Female	Mother
F3	F3C	8	Girl	F3P	47	Female	Mother
F4	F4C	6	Girl	F4P	35	Female	Mother
F5	F5C	6	Boy	F5P	36	Female	Mother
F6	F6C	5	Boy	F6P	39	Female	Mother
F7	F7C	6	Girl	F7P	37	Female	Mother
F8	F8C	5	Boy	F8P	36	Female	Mother
F9	F9C	8	Boy	F9P	37	Female	Mother
F10	F10C	4	Boy	F10P	34	Male	Father
F11	F11C	7	Boy	F11P	38	Female	Mother
F12	F12C	5	Girl	F12P1	31	Male	Father
				F12P2	29	Female	Mother
F13	F13C	5	Girl	F13P	41	Male	Father

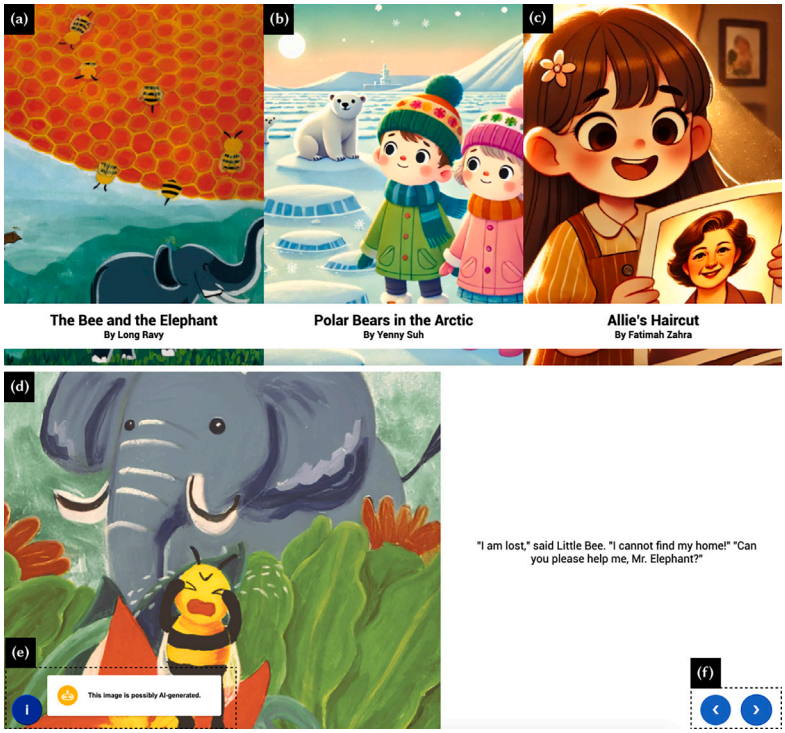

Fig. 1. Three stories were used in our study, with a range of types and themes: (a) an animal-themed science story ("Polar Bears in the Arctic" by Yenny Suh), (b) an animal fable ("The Bee and the Elephant" by Long Ravy), and (c) a story focuses on everyday life, real-world theme ("Allie's Haircut" by Fatimah Zahra). The stories were presented to our participants through a website, where each page included (d) an AI-generated image alongside the corresponding text. Each page also included (e) an interactive label which provides users with information about whether the image on the current page is AI-generated or not, and (f) navigation buttons that allow users to toggle between pages of the story.

see Fig. 1e) and could choose to explain this to their child in their own way if they wished. After reading each story, children rated their experience and the images using a 5-point Likert scale ("really like" to "really dislike"). The Likert scale was employed specifically as a structured approach to facilitate feedback collection from young children participants, as children in our target age range (4–8 years) may have difficulty providing unstructured feedback. For children who had challenges understanding or responding to the 5-point scale format, we modified the approach by simplifying the questions or using alternative prompting methods (such as asking them to choose between fewer options or using visual cues) to ensure all children could participate meaningfully in the feedback process.

Following the reading session, child participants engaged in a brief, 5-min debriefing. Questions focused on: (1) their preference between the two stories and the reasons for their choice; (2) whether they would like to read similar stories in the future; and (3) their feelings about the illustrations and how these influenced their enjoyment of the stories. The whole co-reading session was audio recorded for analysis, detailed observational notes were recorded by the researchers to capture the interactions between parents and children. The notes focused on verbal and non-verbal behaviors, such as conversational exchanges about the illustrations, gestures pointing to visual elements, and moments of engagement or distraction.

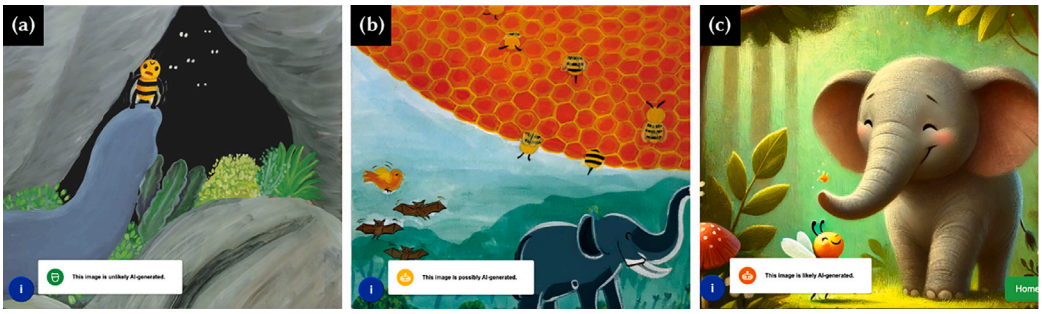

Fig. 2. Three images from "The Bee and the Elephant" story show one example for each level of likelihood of AI generation in the presented image, including (a) human-created image, (b) AI-augmented human-created image, and (c) AI-generated image. Depending on the result returned by the AI detector, the information icon in the left corner of the image will present the information regarding the likelihood of AI generation in the current image.

3.3.2. Parent interview session

Following the reading session, parents participated in a 20–30 min semi-structured interview. The discussion covered several key areas: Experience Reflection, where parents reflected on aspects of the reading session that went well or could be improved; Improving AI-Generated Visual Content, identifying critical factors such as consistency, visual style, storytelling alignment, and authenticity, while also addressing ethical considerations like misinformation, bias, and copyright issues; Authenticity of Visuals, where parents shared their understanding of "authentic visuals" and how it influenced their reading practices; Tool Features for Evaluating Visuals, including feedback on hypothetical tool outputs designed to assess authenticity and quality, with features like confidence levels, partial generation indicators, and safety measures; and Future Use and Adoption, where parents expressed their openness to using stories or tools featuring AI-generated images, providing reasons for their perspectives. All interviews were video recorded for transcription and subsequent analysis. Finally, parents provided demographic information and contextual data about their reading habits.

3.4. Data analysis

Both parent–child reading sessions and parent interview sessions were recorded over Zoom. Researchers also took notes during the reading sessions and debriefed after each study session. All recordings were transcribed and converted into textual format. To analyze our qualitative data (recording transcripts, observation notes, and debriefing memos), we followed a reflexive thematic analysis approach (Braun, Clarke, Hayfield, & Terry, 2019). The authors first familiarized themselves with the data through repeated reading of the collected data. Next, they generated initial codes individually, with each author coding half of the dataset. In total, over 580 initial open codes were developed. The same authors then collaboratively reviewed and organized these codes into meaningful clusters, examining relationships and overlaps to identify potential themes. Through iterative discussions and memo writing, they refined and named the final themes, ensuring they captured both semantic and interpretative patterns in the data. This included merging, splitting, or discarding themes where needed. Finally, supporting quotes were identified and selected to illustrate each theme. We organize these themes following our research questions and describe them in the next section.

4. Findings

In this section, we begin by describing common interactions and practices observed with AI-generated images and stories. We then present our findings in relation to our two research questions: (RQ1) the aspects that children and parents value in AI-generated images, and (RQ2) parents' concerns and attitudes toward AI-generated content for their children.

4.1. Parent–child interactions with AI-generated images and stories

Our participants reported that their interactions with stories featuring AI-generated images were similar to their experiences with traditional picture books without AI-generated visuals (F1P, F4P, F8P, F10P, F12P1). They found that AI-generated images could provide additional information, enrich the reading process through visual narratives, and offer meaningful details to support comprehension (F1P, F12P1). During co-reading sessions, we observed (consistent with parent reports (F2P, F10P)) that most children first engaged with the images before reading the text, to discuss/guess the content with their parents. As F4P noted, "*when children are reading picture book…the first thing they see is the picture, then start to read the text*". Therefore, AI-generated visuals could effectively provide a visual narrative for younger children, particularly those with limited vocabulary who rely heavily on images for comprehension and participation.

Although AI-generated images generally supported storytelling in our story examples, as they were generated directly following the text from the stories, parents occasionally encountered challenges when explaining and expanding on the generated images. For example, our participants noticed that bats show up during daytime, smoke appears from nowhere on the ice field, or the girl holds her mom's picture backwards (Fig. 3). Although parents could not always explain these "bugs" well in their storytelling, F10P commented that these challenges were common in non-AI-generated content as well when he had to "improvise" and make sense of these bugs in the storytelling. With our example story where the bats appear in the daylight, he explained "*those bats go out to play*" and transitioned well to the next part in the story. Interestingly, we observed that children rarely noticed whether images were AI-generated and did not appear to care about this distinction. Although on each page of the story, we provided an AI detector label to indicate the source of the images, we found that parents and children rarely interacted or were aware of this label during the reading process. Only two families (F3 and F10) noticed the label while reading, and when they did, engaging with the label distracted them from the storytelling experience (F3P).

4.2. Aspects parents and children value in AI-generated images for stories (RQ1)

Our child and parent participants highlighted several key aspects they considered important in AI-generated story images, including visual style and consistency, visual details, authenticity, safety, and representation of emotions. Child participants' Likert scale ratings on general likes and dislikes about images in stories (7 responses collected were in the range of 3–5) supported their qualitative feedback, where images received higher scores when they contained appealing visual elements, positive emotions, and clear composition. Each of these factors plays a crucial role in shaping the reading and storytelling experiences, influencing how children engage with the story and how parents assess the quality of the images and the overall stories, which we detail below.

Fig. 3. Examples from our AI-generated images that include "bugs" in the image: (a) bats show up during daytime, (b) smoke appears from nowhere in the icefield, and (c) the girl holds her mom's picture backwards.

4.2.1. Consistent visual style with rich details

Both children and parents mentioned **visual styles** as an important factor influencing the quality of generated images, story selection, and their overall preferences for stories. Visual styles, including **color, composition and layout, stroke and shape style, texture and details**, play a key role in shaping children and parents' engagement with story images. Some of our child participants tend to prefer clean and expressive lines with a smooth texture, and said that "*warmer colors make the pictures feel nicer to look at*" (F1C). Their preferences on generated images can also be influenced by specific visual elements. For instance, F2C disliked a particular picture because "*the elephant's trunk had this thick black line that made it look weird*". The Likert-scale ratings collected from our child participants also supported these visual preferences. Child participants gave higher scores (4–5) to images with appealing elements they could identify. For example, F4C rated an image 5 because "*there's a pink flower*" and another 5 for having "*trees and the plant*". Additionally, composition and layout affect children's preferences, as some children are drawn to images with a clear visual hierarchy and structure. F9P noticed that F9C, who is learning to draw, especially enjoys well-composed images because "*they give him ideas about how to draw different things and put them together*".

Parents also have different preferences for visual styles. Some parents prefer rich and bright colors (F1P, F5P, F9P), which they believe make the generated images more appealing and engaging for children. When it comes to stroke and texture style, parents have a wider range of acceptable styles compared to children. Our parent participants have similar preferences on generated images' layout as the child participants, where they prefer well-structured images with key characters and elements clearly positioned in the layout (F8P, F10P). While expressiveness and complexity in line and texture are not necessarily requirements, some parents (e.g., F4P, F12P1) appreciate simple yet playful style as long as "*the colors and layout look good*" (F12P1). Interestingly, some of our child participants preferred generated images with more refined and detailed drawings. For example, F5C liked when drawings showed "*more tiny details, like the fur on a polar bear*". F5P felt AI-generated images that with more details often make the characters and objects have a "*3D feeling*" and make them more appealing to children.

Parents also showed the preference on **consistency in visual style**. While they believe their children may not always notice inconsistencies between images while reading (F5P), parents themselves can easily spot such differences when quickly reviewing a story before allowing their children to read it. Many parents associate visual consistency directly with the overall quality of the story, as inconsistencies in images are often perceived as potential mistakes or errors (e.g., F3P, F4P, F10P). Some parents (e.g., F2P, F13P) specifically pointed out that visual inconsistencies can cause confusion for children when reading the story. For instance, "*the elephant on page three looks really different from the one on page two, kids might think it's a new character, like maybe the first elephant's friend, and get confused about what's happening in the story*" (F2P). As noted by F4P, since children typically rely on the images first to understand the story before turning to the text, the images and text on a page are expected to convey the same information. Hence, maintaining visual consistency is essential for images to effectively support the reading and storytelling process.

Another important quality discussed by our parent participants is the presence of **rich visual details in generated images**. Parents appreciated images that include elements beyond the main storyline, saying these details "*add more layers to the story and help kids look closer*" (F13P). For parents who actively discuss stories with their children while referring to the images (e.g., F10P, F12P1), these extra details make it easier to "*keep kids curious and talking*". (F12P1) For example, when reading with F10C, F10P used "*the tiny houses in the background*" to explain more about the Arctic setting, which helped F10C better understand where the story takes place.

Parents also felt that their children often are better at noticing and pointing out these subtle details in the generated images, which provides valuable opportunities for questions and discussions between them (e.g., F4P, F10P). For instance, F13C pointed out, "*look, there are little sparks around the polar bear! What do they mean?*" This led F13P to explain more and keep the conversation going. F1P shared, "*when there are fun little surprises in the pictures, my child wants to read it more*". Similarly, F5P said, "*those playful details make the story more interesting for my kid*". Some children expressed a preference for generated images with whimsical elements (e.g., "*There's a cave with bats and you can only see their eyes. Cool!*" from F4C), which capture their imagination and make the reading experience more enjoyable.

4.2.2. Authenticity to the story and to the real world

Authenticity is vital for AI-generated images, but children and parents value it differently based on context. When evaluating images in books, almost two-thirds of parents ranked authenticity among their top two priorities for stories with good-quality images. Our participants discussed authenticity from two key perspectives, and depending on the type of the story, children's age, and the potential impact, the importance of authenticity varies regarding the generated images.

One perspective of authenticity, and often considered fundamental, is ensuring that AI-generated images **remain true to the stories narrated by the text**. For example, F4P explained that "*if there's a bee and an elephant visiting a bird's nest, then the nest and all the animals should really be in the picture*". Many parent participants emphasized that images should stay relevant to the text and accurately capture what is described (F1P, F2P, F4P, F12P). Finding textual reference in generated images is crucial for children when reading. As F2P discussed, "*if kids can't see what the text is talking about in the picture, they'll think the picture is wrong and lose interest in the story*". Although AI-generated images sometimes exhibit inconsistencies and small "bugs", most images in our example stories remained close to the descriptions in the text, which our parent participants generally considered a positive aspect of the current AI model. They felt that, despite minor issues, the overall quality of the stories and generated images was relatively acceptable from the relevancy perspective regarding the authenticity. However,

discrepancies between text and images can make the story confusing or difficult to follow for children, as they are often more attuned to these discrepancies when reading. For example, when reading a page about a polar bear digging, F2C pointed out that although the text described the action of digging, there was no hole in the picture, making the image feel inauthentic.

Another aspect of authenticity discussed by our participants is **accurately capturing and reflecting real-world facts and information** in the AI-generated images. Older children were more likely to notice elements that felt unrealistic. For example, F2C asked, "*how did the elephant get so small and the bee get so big?*" and F3C also noted, "*wait... the elephant was smaller than the hive!*" F9C noticed that the way a polar bear was depicted playing with water looked more like a dog's behavior. Similarly, F4C commented that a character's posture while holding a picture and looking into a mirror felt awkward compared to how people typically do it in real life. Despite these observations, most children, except for F2C, did not let such inaccuracies significantly affect their overall enjoyment and preference of the generated images.

Unlike children, who often pointed out inauthentic details in the generated images, our parent participants had varying levels of tolerance for inaccuracies related to real-world facts in AI-generated images. Many parents viewed authenticity differently depending on the story type. For narrative-driven or fairy tale stories, they considered real-world accuracy to be less critical compared to other factors like visual appeal, consistency, and authenticity to the story itself (F2P, F7P, F13P). F5P explained that since these stories already feature anthropomorphized characters and some exaggerated or dramatic elements, details such as "*bats appearing in daylight*" were not a major concern as long as they aligned with the story's internal logic. However, parents emphasized that authenticity to real-world facts becomes far more important for stories focused on science, nature, history, or biographies. Both F7P and F13P mentioned that in non-fictional science stories or STEM-related materials, accuracy of the facts in images is essential for maintaining credibility and supporting children's learning.

One specific scenario described by our parent participants where they would be particularly concerned in all types of stories about inaccuracies in AI-generated images, especially when incorrect information could affect children's understanding of real-world safety. F8P mentioned that "*if the picture shows something unsafe, like a kid touching an electrical outlet, I'd be really worried*". Another example shared by F9P "*if there's a image where the bee is shown interacting with people, kids might think it's okay to go up to bees... and that could actually get them hurt*". These concerns were especially relevant for older children in our participants' age group (i.e., older than 4 years old), as parents believed that at these later ages, children become more attentive to real-world accuracy and are more likely to internalize information from the generated images.

4.2.3. Accurate and engaging emotions

When discussing different aspects of authenticity in generated images, some parents (e.g., F1P, F8P) emphasized the importance of depicting authentic emotions, particularly in the characters' expressions. Several parents (e.g., F1P, F4P, F6P) ranked emotion as a key factor in determining the quality of images when evaluating various considerations. F8P and F10P specifically highlighted that the emotions depicted in the images should be clear and align with the content of the story. For example, F6P praised the images in a story where the elephant appeared kind and gentle, matching the character's role in helping the bee find its home, which is an emotion that resonated well with the story's narrative. F4P also shared similar sentiments that "*the picture is nice because the elephant looks friendly... like they are really helping the bee*". In addition to emotional relevance and accuracy, parents stressed that the emotions portrayed in images should feel authentic and genuine. F8P pointed out that while the generated images in the polar bear story included many visual details, the emotions in the characters did not feel real, "*looks very detailed but... not very emotional*", making the images less compelling for children. She felt that in non-AI-generated images, even with minimal facial expression details, the emotions often felt more genuine and believable. According to F8P, characters' emotions should be readable and clear without requiring excessive details on faces. For instance, as F13P noticed in our story examples with the bee character, even "*the bee's eyes are not super clear, one can tell from their posture that they are unhappy*". F6P also shared that "*even if there are not many details in [the bee's] face, one can still feel they are sad*".

Emotions also play a crucial role in children's engagement with story images. When asked about our child participants' favorite generated images in a story, some children specifically chose images where emotions felt meaningful or special. As F12P commented about a specific image example, "*you see the bee is crying... it makes the story more interesting to [the child]*". F1C preferred an image where both characters looked happy after successfully completing their task of finding a home (Fig. 4a), while F3C selected a picture where a girl looked joyful as her mother helped fix her haircut. Interestingly, for some of our child participants, generated images with negative emotions drew more attention to the characters' expressions than other details in the scene, which often corresponded with lower ratings or dislikes with specific images. For instance, F4C gave a 3 to a cave scene because "*it's scary*". When discussing images they did not like, F1C expressed a dislike for a picture where the bee was crying, while F2C disliked an image in which all the characters appeared angry at each other (Fig. 4b), and commented "*they all look mad with each other!*" These reactions suggest that our child participants were highly sensitive to emotional cues in the images, which can significantly impact their perception of the story when reading.

Some of our parent participants preferred stories with more positive emotions, as they considered stories and readings as a way to provide emotional support for their children, helping them process and navigate their own emotions (F2P, F13P). F6P emphasized that while positive feelings are often created through the story's narrative, they are further reinforced by the supporting images. For instance, she felt that in our example story of a mother helping her daughter fix her haircut, the narrative and the image where the daughter sits on her mother's lap perfectly conveyed the warmth and the positive emotional connections (Fig. 4c). F4P also shared that "*if the characters look angry or too sad, I would consider whether this is appropriate for [the child]*". Since children are naturally attuned to emotions, parents often use stories as a way to discuss and explore feelings with them. Both F2P and F8P noticed that their children tend to engage more deeply with stories and images that have diverse and rich emotions, providing more opportunities for interactions and discussions over the stories. F2P shared that "*when he [the child] first saw the image and noticed the bee was crying, he asked 'why is it crying' before I even started reading the text". F8P noticed that "as soon as she [the child] saw the little animal smiling [in the image], she would say 'it is so happy!'*". Given this dynamic, it is essential for AI-generated images to depict emotions that are accurate, authentic, and expressive, as they not only enhance reading and storytelling but also support children's emotional development.

In general, our findings reveal that parent participants have clear preferences regarding emotional content in AI-generated story images. Parents generally favored positive emotions in storytelling contexts, viewing stories as vehicles for emotional support and development (F2P, F13P). However, they also recognized the educational value of diverse emotions, observing that children engage more deeply with emotionally rich content that provides opportunities for discussion and learning (F2P, F8P). Most importantly, parents prioritized emotional authenticity and clarity over emotional simplicity. They often wanted emotions that are genuine and story-appropriate rather than uniformly positive, supporting their role as facilitators of their children's emotional development through storytelling.

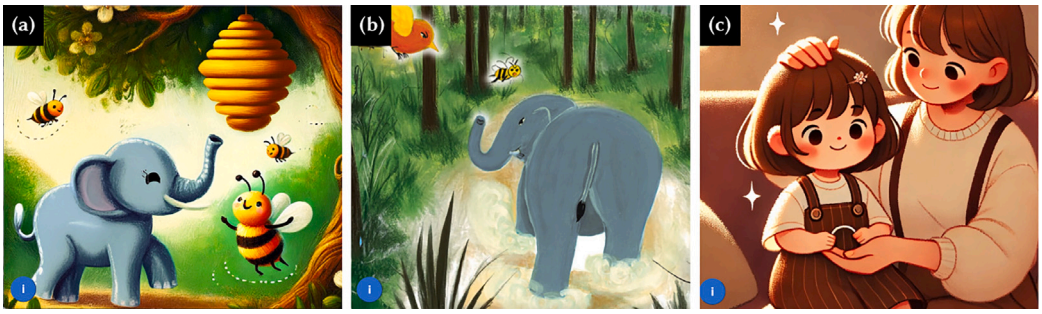

Fig. 4. Examples from our AI-generated images with different emotions: (a) the elephant and the bee are happy and smiling at each other, (b) the bee, the bird, and the elephant look angry at each other, and (c) the girl sits on her mom's lap and both are smiling.

4.2.4. Safety as a fundamental consideration

According to our parent participants, safety is a critical consideration when evaluating AI-generated images in children's stories. As F9P shared, "*first of all, there should be no unhealthy information... the content should be safe [for the child]*". And rather than considering safety as a quality with varying degrees, many parents view it as a "binary" requirement—either a story is safe, or it is not. And if it does not meet the safety standards, they would not consider it at all (e.g., F1P, F12P, F9P, F13P). Like F13P shared, "*safety is the bottom line... if there is a problem, it [the story] should be immediately rejected*". Almost all parent participants (except F2P and F8P) ranked safety as one of the most important aspects when assessing AI-generated images. Among different aspects in safety considerations, F4P, F7P, F10P, and F13P emphasized that images should not contain violent or disturbing content. "*If there is violence or elements that are not suitable for children, I would absolutely not choose it (F13P)*". While F2P highlighted the importance of ensuring that the generated images are age-appropriate for their children, as F7P shared, "*it really depends on the child's level of maturity... some kids have different levels of acceptance*". F10P also noted that "*some children are braver and can see scary elements like monsters, but some children will be scared*".

When it comes to determining the safety of AI-generated illustrations, parents prefer to rely on judgment from experts and trusted platforms (F2P, F10P, F12P). They expressed that such generated images should undergo careful screening and review by domain experts, such as educators, librarians, relevant institutions, or publishing platforms to ensure they meet appropriate standards and parents can "*feel much more assured*" (F2P). F10P also commented that, "*it is better to have professionals and experts review the content... otherwise parents cannot always tell if it is safe*". However, once the story and the content have passed expert review and are deemed appropriate and safe for children of a certain age, our parent participants do not have strong safety concerns toward AI-generated images (F3P, F6P, F9P). F6P shared that "*as long as the stories are formally published and reviewed... I don't really need to check whether it is AI-generated or not*". They see the safety review as a necessary checkpoint. Once the review is completed, they feel reassured and do not feel the need to scrutinize the content further. F5P, F9P, and F11P felt that if stories with AI-generated images become available on publisher platforms, in libraries, or through other trusted sources, they are less concerned towards the generated images. F11P also shared that they felt more assured about content through these trusted sources, and feel they are "*better than randomly downloaded and accessed content online''*. These comments highlight the importance of having credible safety reviews to ensure that AI-generated images meet the safety standards expected by parents in stories for their children.

4.3. Parents' attitudes and concerns towards AI-generated images in stories for children (RQ2)

Most parents felt that stories with AI-generated images are acceptable as long as they meet certain quality standards (e.g., F1P, F4P, F8P). As F13P mentioned "*I don't mind whether it's AI or a human, it's all content creation. . . and authors vary in quality too*". F4P even commented that these AI-generated images were better than some poorly illustrated stories and books they had encountered: "*I don't really have high expectations for AI-generated pictures. At this stage, it's not enough to generate that type of high quality*". Although parents were generally open to AI-generated images, F8P found some generated images "*have more of an artificial feeling*" which may negatively affect children's aesthetic sense. F12P1 strongly objected AI-generated images because they "*don't want AI to take the role of human artists*". F4P also questioned current AI's ability to create visually engaging and creatively rich images compared to those created by human. Notably, our parent participants expressed a more positive attitude toward AI-generated images because what they considered as the core elements of the stories, the plot, dialogue, and narrative, were still created by human authors (e.g., F2P, F7P, F11P). As F4P mentioned "*As long as the main story is from human authors, I feel no concern. Visuals are more like the supplements*". F1P and F11P mentioned that if AI were responsible for generating the entire story, they would be more cautious as they feel "*AI-generated content lacks the depth and emotional nuance of human storytelling*" (F1P).

When asked what additional information would help them evaluate AI-generated images in books, most parents felt that highly detailed breakdowns (e.g., statistical likelihoods of AI generation for each page) were unnecessary (e.g., F5P, F9P, F13P) as "*they're not related to the story*" (F9P) and "*could distract children from the reading experience"* (F2P). Some parents (e.g., F2P, F10P, F13P) felt that a simple label indicating AI-generated images on the cover of the story is enough. While such labels would not necessarily deter them from selecting certain stories with AI-generated images for their children, they felt such transparent communication was important to be aware of the content and make decisions accordingly.

Interestingly, while parents did not feel the need for detailed AI-related information in the story's content (e.g., the likelihood of AI generation for each image) when reading stories with their children, some parents saw potential educational benefits on AI literacy in certain scenarios with this information. Both F4P and F13P worried that their children cannot distinguish AI-generated images and content from real ones, and they felt that the additional information can help their children "*learn how to differentiate between real and generated images*". F13P suggested that providing more interactive AI-related indicators could be useful for older children (older than eight years old) when they read independently. F4P also commented that since children sometimes argue with parents over some details in images or stories, an interactive AI detector could serve as a fact-checking tool, facilitating discussions between parents and children about accuracy, authenticity, and storytelling elements. This kind of AI transparency could be particularly valuable when children have questions or confusions about the generated content in stories.

Beyond clear labeling to indicate the presence of AI-generated images, parents also emphasized the need for a formal review and approval process by domain experts. F6P and F8P mentioned that they

would feel more comfortable selecting stories with AI-generated images if the content had been reviewed by human experts, such as educators, librarians, or relevant professionals. They believed that expert oversight could ensure that AI-generated images and stories met quality and safety standards, similar to the way traditionally published children's stories and books are reviewed before being released. Some parents also trust established platforms and publishers with this screening and reviewing task (e.g., F2P, F7P). F9P and F10P felt if a story is available through a reputable publisher, library, or platform, it is already screened for quality, appropriateness, and safety.

5. Discussion

In this section, we first summarize our results based on RQs. With insights into children's and parents' preferences and concerns regarding AI-generated images and stories, we discuss implications for designing adaptable and context-aware story illustrations, as well as considerations for developing tools that enhance families' AI literacy and support their informed decision-making process. We also discuss the study's limitations and outline directions for future research informed by this work.

5.1. Principal results

Across 13 family sessions, we found that children used AI-generated images as the entry point to reading, as with non-AI books, but occasional errors in AI-generated images required parents to improvise. Children rarely noticed or cared about AI authorship, and the AI-detector label was mostly ignored and sometimes distracting. For the RQ1 on what visual aspects families value in AI-generated images during shared reading, children commonly looked at images before text and used small details to talk with parents; these details helped sustain conversation and engagement. Parents and children valued clear composition and layout; children often preferred clean lines and warm colors, while parents emphasized page-to-page consistency when deciding whether a story was appropriate. Authenticity worked on two levels. Staying true to the written scene was treated as a baseline, and text–image mismatches reduced credibility for children. Real-world accuracy mattered more for science or informational stories than for fables, with older children noticing scale and behavior errors; parents raised special concern when inaccuracies might encourage unsafe behavior. Emotions needed to be readable and aligned with the scene to support both comprehension and social–emotional talk.

For the RQ2 on how parents assess the acceptability of AI-generated images and what safeguards they want, our findings showed their conditional acceptance tied to the story's overall quality. Several parents had fundamental concerns or noted an "artificial" look, and many wanted plots and dialogue to remain human-authored. Most did not want page-level AI detection information during reading and preferred a simple cover label; some saw value in such information for AI literacy with older children outside reading time. Parents asked for expert screening by educators, librarians, or trusted publishers; once a story passed expert screening, AI involvement was less concerning.

5.2. Designing for adaptable and context-aware child-centric story illustrations

In our work, with safety as the foundation, we identified several aspects that children and parents value in AI-generated images within the specific context of story reading and telling. Some identified aspects (e.g., maintaining visual consistency) can be enhanced through prompt engineering (e.g., Ahmad and Ruslan (2024) provides guidelines for creating effective prompts for image generation), or through improvements in the multimodal AI model itself (e.g., from *text-to-image* to *image-to-image*). Consistency in editing has been improved through automated object detection and inpainting (Lee, Lee, Jung, & Hwang, 2023), or enhanced batch editing (Barnaby, Chen, Samanta, & Dillig, 2023). From a content creator's perspective (including story authors or even children themselves), supporting the generation of more appealing and engaging images for stories may require additional editing features.

Future AI-generated image editing tools should be adaptable and context-aware to accommodate variations in children's age, parental preferences, and the type of book. Our findings indicate that preferences for visual details, realism, and emotional expression are not uniform across all users. For example, parents of older children tend to prioritize real-world accuracy in images, especially for educational or science-related books, whereas they are more flexible about imaginative or exaggerated elements in fictional stories. Similarly, while both parents and children value rich visual details, children often prefer whimsical or playful elements that capture their imagination, while parents appreciate details that enhance storytelling and facilitate discussions. These differences suggest that AI-powered illustration tools should allow creators (or even parents or children) to adjust the level of detail, realism, and visual complexity based on the intended audience and context. Existing AI-powered editing tools, like *Adobe Photoshop*, provide functionality for focusing on specific areas or objects, which can help creators fine-tune emotional accuracy or adjust details (Lin, Xu, Ma, Xu, & Xiao, 2023; Oh, Kim, & Kim, 2024).

Additionally, emotional clarity and accuracy are essential for AI-generated images, but the way emotions should be conveyed varies. Parents emphasize the need for emotions to be clear and expressive while aligning with the story's narrative, whereas children are highly sensitive to emotional cues and may react strongly to negative emotions such as sadness or anger. To address these differences, AI-driven tools should offer adjustable emotional settings, ensuring that emotions in illustrations remain visually clear but can be fine-tuned in intensity and expression to match the intended emotional tone of the story. For example, emotional expressiveness can be refined using automatic prompt editing (Wang, Shen, & Lim, 2023). Providing such controls would help balance engagement for children and parental expectations for emotionally appropriate storytelling.

5.3. Enhancing AI literacy and supporting informed decision-making for families

Our findings showed that parents' need for simple, clear, and transparent information about AI-generated images to help them make informed decisions when choosing content for their children. While clear labeling of AI-generated images within a story could enhance transparency (as used in our study), it may distract children from the storytelling experience. To balance informed decision-making with an uninterrupted reading experience, our findings suggest that transparency about AI-generated content should be provided on the story's cover rather than within the content itself. This approach minimizes distractions while ensuring parents can make informed choices. Additionally, domain expert review and screening are essential to help parents assess the appropriateness of AI-generated images and content. Prior work highlights the importance of stakeholder-informed participatory approaches involving experts, parents, and educators to establish standards (Balachandran & Carey, 2018).

In contexts where stories are entirely AI-generated, stronger communication and trust-building mechanisms are needed, as they raise significantly more concerns for parents compared to AI-generated visuals. Explicit cues about content quality, such as references to source materials or key terms, can aid parents in evaluating AI-generated content. Trustworthiness cues, as proposed by Liao and Sundar (2022), offer a framework for designing such communication strategies. As AI-generated content grows in complexity, these mechanisms will become increasingly important to support parental decision-making. Our work also highlights the potential of AI-generated storytelling to enhance family AI literacy. By incorporating educational elements about AI's capabilities and limitations, interactive storytelling can foster informed

and engaged interactions with AI systems. For older children, additional information about content authenticity can help differentiate between real and AI-generated material, further supporting AI literacy development (Chu-Ke & Dong, 2024; Druga, Yip, Preston, & Dillon, 2021; Su, Ng, & Chu, 2023). These design implications aim to create a more transparent, trustworthy, and educational experience for families engaging with AI-generated content.

5.4. Limitations and future work

Our study has several limitations. First, the study involved parent–child pairs reading two selected books from a set of three, each representing distinct themes (e.g., science, fables, and everyday life). Our findings suggest that parents perceive the importance of visuals differently across story types. For example, science-themed books require greater precision in visual representation. However, the limited range of story categories may restrict the generalizability of these insights. Future studies should include a broader range of visual styles and story genres to better capture diverse parental and child preferences. In addition, while children's feedback was collected through brief debriefing sessions and Likert-scale ratings, the study offered limited depth to explore their perspectives. Younger children, in particular, may find it challenging to articulate their preferences or thoughts on the visuals in detail. Employing child-centered methods, such as drawing activities or interactive storytelling tasks, could yield richer insights into how children perceive and engage with AI-generated visuals.

Our study recruited parent–child groups from metropolitan areas in Canada, which may limit the generalizability of the findings to families in other cultural or geographical contexts. Families from diverse regions or cultural backgrounds might have different preferences, practices, and concerns regarding AI-generated visuals. Additionally, while the participant size was adequate for qualitative research, it may not fully capture variability in family structures, socioeconomic statuses, or educational backgrounds. Future studies should aim to include more geographically and culturally diverse samples to enhance the external validity of the findings. Although we attempted to replicate natural reading practices, the remote and structured nature of the study may have introduced artificiality into the interactions. Reading sessions conducted via Zoom, under researcher observation, might have influenced how parents and children engaged with the books and visuals. Observations in natural home settings or longitudinal studies could provide a more accurate understanding of how AI-generated visuals are integrated into everyday reading practices.

In our study setup, we used ChatGPT-4o to generate visuals due to its advanced capabilities in handling image prompts. Nonetheless, we observed limitations in the model, such as inconsistencies in maintaining character continuity across visuals. While we applied generation IDs to improve consistency, these efforts may not fully represent the capabilities or limitations of other generative AI tools. The quality, style, and coherence of visuals could vary significantly depending on the AI model used, potentially influencing participant perceptions and preferences. Future research should consider selecting models specifically optimized for visual storytelling or even designing bespoke tools for this purpose. Additionally, while our study included an AI detector to simulate real-world transparency features, this tool was used solely as a design probe rather than for establishing ground truth, which we determined through our controlled image creation process. Future work should explore how different types of transparency indicators affect family reading experiences and decision-making processes. Despite these constraints, we believe our findings remain valuable given the current state of AI technology. The identified limitations, such as inconsistencies in visuals, reflect common challenges in existing AI tools and provide a realistic baseline for understanding their impact on storytelling practices.

6. Conclusion

Our study investigated the needs, practices, and concerns of children and parents regarding AI-generated images in storytelling and reading activities. Through co-reading sessions and semi-structured interviews with 13 parent–child groups, we examined how families evaluate and use images created by generative AI tools in diverse storytelling contexts. By including books with varying types and themes, we sought to uncover aspects children and parents considered important in different visuals for stories. Our findings reveal that families value consistent visual style and rich narrative details in AI-generated images, with visual consistency crucial for story quality and rich details encouraging deeper engagement. Authenticity operates on two levels, including story-text alignment (fundamental for all content) and real-world accuracy (flexible for fiction but critical for educational content, especially as older children notice inaccuracies). Emotional representation must be clear and story-appropriate, while safety remains the foundational binary requirement, with parents emphasizing expert review processes. While children rarely noticed or cared whether images were AI-generated, parents often prefer cover-based transparency over detailed breakdowns to avoid distraction. Parents see educational benefits in AI literacy tools for older children.

Building on these insights, we discuss the design implications for adaptable, context-aware storytelling images and explore ways to enhance families' AI literacy. We highlight considerations for tools that support informed decision-making when using AI-generated content. By contributing to an understanding of how AI-generated images shape reading and storytelling experiences, this work aims to inform the design of more inclusive, user-centered technologies for children and families.

7. Selection and participation of children

A total of 13 children (aged 4–8) were recruited for this study through local social media platforms and snowball sampling in metropolitan areas of Canada. Ethical approval for the study was obtained from the institutional Research Ethics Board prior to recruitment. Before participation, parents received detailed information on the study, including its purpose, procedures, and voluntary nature. They were asked to complete an online consent form for their own participation as well as a parental consent form for their children. Participants were assured that all data collected would be anonymized and used exclusively for research purposes. At the beginning of each session, the researcher explained the activities to the parents and child participants using simple, age-appropriate language. Children were verbally asked if they agreed to participate and were informed that they could take breaks or stop at any time if they felt uncomfortable.

CRediT authorship contribution statement

Qiao Jin: Writing – original draft, Software, Methodology, Formal analysis, Data curation. **Ye Yuan:** Writing – original draft, Software, Methodology, Funding acquisition, Formal analysis, Data curation.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix. Example prompt used for picture generation

[Role]: You are an Illustrator for a children's book – Use a consistent visual style that appeals to young children.
[Title of the Book]: The Bee and the Elephant
[Book Content] "I am lost", said Little Bee. "I cannot find my home" "Can you please help me, Mr. Elephant?" "Is this nest your home, Little Bee?" the elephant asked. "Oh no!" cried Little Bee. "This is a bird's home". "Is this cave your home?" asked the elephant. "Oh no! This is a bat's home". "Is this hive your home, Little Bee?" "Oh yes!" said Little Bee happily. "This is my home". "Thank you for helping me, Mr. Elephant".
[Task]: Create a scene that visually narrates ["Is this cave your home?" asked the elephant]. The illustration should visually tell part of the story, helping children follow the narrative without needing text. Use this [generation ID] to keep consistent with prior visuals.
[Output Format] High-resolution, 1024 × 1024 square format – Ensure a cohesive look across the book with bright, crisp images suitable for print or digital display. Also indicate the generation ID of this image.

Data availability

The data that has been used is confidential.

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