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GPT-4 Story Generation for Children: Towards a New Literary Genre

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Abstract

This study aims to explore the capabilities of GPT-4 in generating children's stories. Qualitative analysis of the produced texts reveals powerful techniques based on neural networks and large, complex language models, which generate advanced textual, visual, and auditory outputs. These outputs contribute to innovative education and entertainment for children. This technological development leads us to recognize a new literary genre, which we will refer to as "Artificial Children's Literature."

Keywords: Generation; GPT-4; Story; Child; Artificial

I - Introduction

GPT-4 is an advanced language model that generates outputs based on large, developed linguistic models. This bot uses human feedback to enhance its skills and improve its generative capabilities. Unlike previous models, GPT-4 can generate visual and auditory content from the textual inputs it receives. It is also capable of producing infinite texts in various languages and dialects worldwide, including the Algerian dialect.

With these advancements, automated content generation opens new and innovative horizons in the field of literature. One such literary innovation is the "Artificial Children's Story," which this research aims to evaluate by examining its textual and visual aesthetics, as well as the moral and educational values it conveys. This analysis will allow us to assess the quality of these stories and their future benefits for education and entertainment.

This research is driven by a central question:

- Can GPT-4 generate children's stories that provide valuable content and educational impact? This main question raises several sub-questions :
- Can GPT-4 generate children's stories with a narrative style that matches the artistic quality of human writers?
- To what extent can GPT-4's generated texts offer an interactive experience that combines the beauty of text, sound, and visuals?
- Do the generated stories align with the customs and traditions of the society to which the child belongs?
- To what extent can GPT-4 create an educational environment that nurtures and develops a child's moral character?

The research divides into three main sections to answer these questions. The first section focuses on understanding GPT-4 and how it operates within the framework of neural automation. The second section analyzes the linguistic, visual, and educational content of children's stories generated by GPT-4. The third and

final section aims to define this new literary genre and assess its future challenges, particularly in regard to ethical concerns.

1 - GPT-4: The Most Powerful Model

OpenAI developed a new and more powerful artificial intelligence model than its predecessor, GPT-3.5. On March 14, 2023, the company officially announced the launch of this advanced bot on its website. This model demonstrated high capabilities in natural language processing by integrating advancements in large language models (LLM) and human-like automatic response abilities (RLH), surpassing human experts in certain tasks (ChatGPT).

Image 01: Official logo of GPT-4.



Source: (<https://chatgpt.com/?model=gpt-4>)

While GPT-3.5 was unable to generate multimedia outputs, GPT-4 has successfully bridged this gap. This bot can create "infinite content based on the responses it generates, transforming language into endless images. Moreover, GPT-4 can respond in 95 languages with a human-like conversational style (Syndeo, 2023)

Thomas Kuer discusses the remarkable capabilities of this model, stating that its abilities go beyond mere text formatting to encompass many impressive and astonishing features. GPT-4 can organize content, engage in constructive discussions, and handle a linguistic context of up to 25,000 words, enabling it to produce richer and more comprehensive texts. It also meets the creative needs of its users, such as designing, composing music, and writing scripts (ChatGPT).

For instance, the creative field describes GPT-4 as a masterful creative tool that "can generate complex stories." Unlike the previous model, it has the ability to build and bring characters to life. GPT-4 surpasses GPT-3.5 in its coherent depiction of characters, events, and plot development (Aimprosoft)

Furthermore, its capabilities extend far beyond creative writing. GPT-4 can even perform surgical tasks and provide healthcare by offering accurate diagnoses to patients. It also supports medical education at universities due to its immense potential. "A recent study showed that GPT-4 was able to answer all three parts of the U.S. medical licensing exam... Using GPT-4 has reduced the workload for human healthcare workers (Haruna-Cooper & Rashid, 2023, pp. 218-219)

Image 02: Example of a conversation with GPT-4.



Source: (<https://chatgpt.com/?model=gpt-4>)

GPT-4 has managed to attract millions of users in a brief period, surpassing all social media platforms combined, such as Meta, X (formerly Twitter), and Instagram. "ChatGPT gained over a million users in just five days, while Facebook took about ten months and Netflix took around three and a half years to reach the same number of users (Duarte, 2024, para. 4) .

This exponential growth will likely make GPT the most globally widespread model, especially after Open AI launched its new model, GPT-4, which became available starting May 13, 2024. This model can use voice mode for direct conversations with users. It can also perform tasks through an AI assistant, such as having interactive, productive conversations and creating folk stories reminiscent of ancestral tales. Practically, this assistant, which responds similarly to humans, can aid people with disabilities by accurately describing external events and engaging in real-time conversations about their visual surroundings (Chat GPT).

We are now in the age of artificial intelligence, where large algorithmic models like GPT, Gemini, and Cohere dominate the global landscape. These models offer humanity immense capabilities in predicting outcomes and solving many economic, developmental, medical, and even military challenges. They also have significant potential for generating creative literary content.

2 - Converting Text to Image with GPT-4

GPT-4 outperforms Gemini 1.5 PRO and Cohere by its ability to generate infinite images, a feature that other language models—being purely linguistic—do not possess. GPT-4 can create unique color effects and artwork that often surpass the aesthetic quality of human-made illustrations. The following input and output example illustrates these capabilities:

Command: Generate an image of a 50-year-old woman wearing a Hijab, working as a seamstress, holding a bag of money in her hand, and thinking about her children.

Response: Generative Image 03: The 50-Year-Old Mother



Source: (<https://chatgpt.com/?model=gpt-4>)

Based on the above, and after reviewing GPT-4's generative capabilities in both language and visuals, we will now explore its abilities in the field of literary creativity. Specifically, we will examine its potential in generating children's stories. However, before doing so, we need to establish a conceptual framework that addresses the idea of "Artificial Children's Literature."

3 - Artificial Children's Literature

In the context of generating children's literature, artificial intelligence (AI) refers to the use of computer algorithms and machine learning techniques to create educational and entertaining content for children. AI can analyze large datasets to produce engaging stories tailored to the cognitive and emotional development of children. The integration of AI in children's literature can also involve using technologies such as augmented reality (AR) to create immersive, interactive experiences (Zhou & Li, 2021, pp. 1-7).

This marks a shift in the creative process, moving from human authors, who require specific subjective and objective conditions, to artificial robots that rely on neural automation to generate texts and outputs that cater to children's educational and behavioral needs. Consequently, the child's cognitive experience transitions from static text and visual symbols to enhanced augmented reality experiences. In other words, children's books are evolving from their traditional paper formats to enriched virtual formats.

The ultimate goal of these AI systems is to develop children's linguistic abilities through the enormous potential offered by AI in this field. GPT-4 aims to provide "personalized educational support, available 24/7, which could benefit children by offering instant assistance and facilitating language learning (Ghayoomi, 2023, pp. 80-118).

4 - Applications of GPT-4 in Generating Children's Stories

Command: Write a story for children set in a forest, and accompany it with your creative images.

Response: In a vast, green forest where the trees touch the sky, a rabbit named Nora was preparing for a new adventure. She wanted to find the hidden treasure that legends spoke of. She didn't know its exact location, but she was determined to search for it with the help of her friends.



At first, Nora met Sami the turtle, who was wise and patient. Sami told Nora that the treasure was located at the great oak tree in the farthest part of the forest. Nora was very excited and thanked Sami for her help. Then, Nora and Sami walked together toward the tree, and along the way, they met Faris the fox, who knew a lot about the forest. Faris decided to join them on their journey to search for the treasure.



As they ventured deeper into the forest, they felt excitement and adventure. Finally, they arrived at the magnificent oak tree. The three friends began digging among the wide roots until they found an old chest. They opened it eagerly and discovered golden coins and sparkling jewels inside. The discovery thrilled the friends, who decided to use the treasure to help all the forest animals (OpenAI, n.d., para. 2).



GPT-4 employs familiar character names for children, such as “Nora” the rabbit, “Sami” the turtle, and “Faris” the fox. This helps children to easily visualize and imagine the characters by linking their names to those commonly used in the child’s environment, making the acceptance and appropriateness of the story more established at the child's initial cognitive level. Given that the story targets Arab children, GPT-4 has excelled in character name selection. Additionally, these names carry positive connotations: “Nora” represents light and brightness, “Faris” evokes notions of chivalry and bravery, and “Sami” implies elevation and nobility. This may enhance the moral aspect for the child since these names embody positive values and characteristics.

The verbs in the text express movement and activity, such as “opened,” “walked,” “decided,” and “arrived.” This makes the story dynamic and interesting for children. There is a predominance of past tense verbs over present tense verbs, which is attributed to the nature of children's stories that often occur in a fantastical past, stimulating the child's mind and encouraging them to use their imagination.

In terms of thematic significance, GPT-4 chooses an exciting topic for children centered around adventure and treasure hunting, a common and beloved theme. Here, the treasure represents not only material wealth but also values such as friendship and cooperation. The true treasure is not fleeting money but rather sincerity and love among people.

As for vocabulary, it is simple and appropriate for children, featuring words like “forest,” “treasure,” and “oak tree.” The vocabulary has been carefully selected to be accessible to children and to stimulate their imagination. The text's structures are also simple and clear, making it suitable for children, with short and direct sentences that include enough detail to capture the child's attention without complicating the narrative.

Regarding the analysis of the accompanying images, they align well with the narrative of the story, as the bot generated three images summarizing the storytelling progression from the beginning to the end. GPT-4 used vibrant colors like blue, green, and brown, all suggesting the blending colors of nature; blue represents the sky, green symbolizes the trees and grass, and brown reflects the trunks and earth. This gave the images a wonderful aesthetic that invites the child to contemplate and discover the beauty of nature. The bot illustrated the story's heroes with beautiful drawings that reflect the narrative's progression, thus presenting characters with diverse expressions ranging from piercing gazes and challenging looks to spontaneous smiles. These expressions serve to engage the child and sharpen their interest in the unfolding story events.

Command: Write an exciting story for children set among animals in the forest, targeted at the age group of 6 to 11 years. The story should be structured as a dialogue, and it should be accompanied by beautiful images that illustrate the text. Write a brief dialogue segment for each image.

Response: Adventures of the Lion, Rabbit, and Wolf in the Magical Forest

On a sunny and beautiful day, a little adventurous lion decided to have a new experience and explore the forest near his home. The forest was filled with tall trees and colorful flowers.

Lion: "Hello, beautiful forest! I am excited to discover your secrets."

As the lion wandered through the forest, he met a charming rabbit playing among the flowers.

Lion: "Hello, who are you?"

Rabbit: "Hi! I'm the forest rabbit. Would you like to explore with me?"

Lion: "Yes, I would love to! Let's go together."



The lion and the rabbit continued their journey until they encountered a wolf who looked friendly, standing in the middle of the path.

Wolf: "Hello, who are you?"

Lion: "I am the lion, and this is my friend the rabbit. We are on a tour to explore the forest."

Wolf: "Nice to meet you both! I would like to show you a magical place in this forest."





The wolf led the lion and the rabbit to an amazing place filled with giant trees and flowers sparkling in rainbow colors.

Rabbit: "What a wonderful place! I've never seen anything like it before."

Lion: "This is truly amazing! Thank you, Wolf."

Wolf: "You're welcome, my friends. This place is full of magic and beauty."



After a fun-filled day of adventures, it was time to return home. The lion and the rabbit bid farewell to the wolf and headed back home.

Lion: "; this was the best adventure."

Wolf: "I'm glad you both enjoyed it. Goodbye!"

Rabbit: "Goodbye! See you soon!"

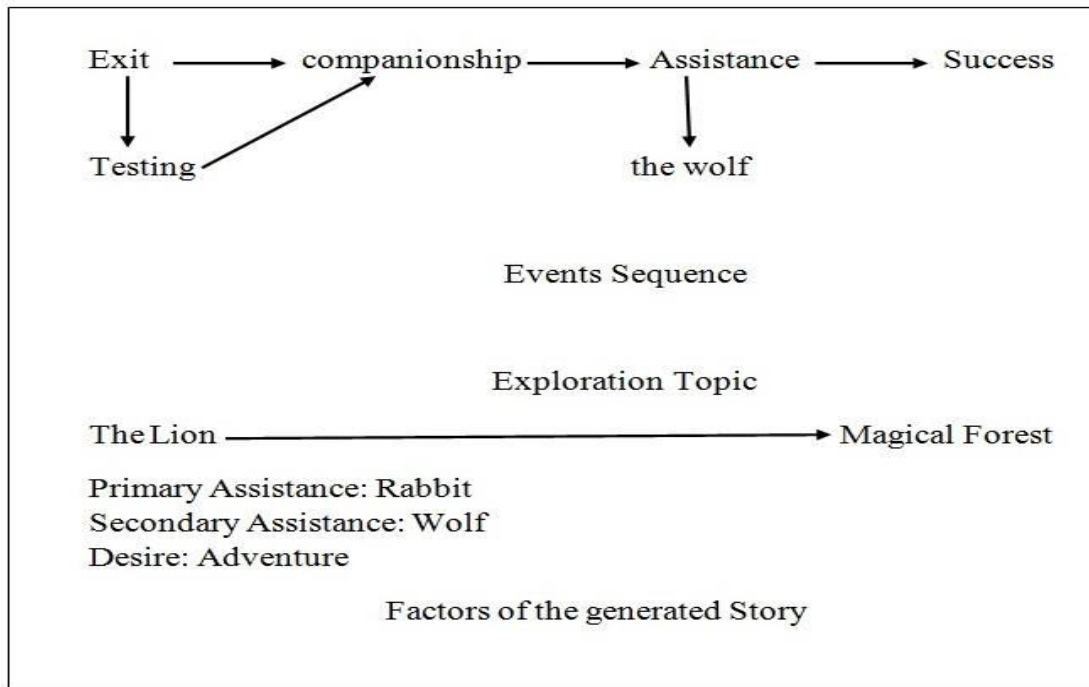
Conclusion: And thus, the adventure of the lion and the rabbit in the magical forest came to an end, where they learned the importance of friendship, cooperation, and exploring the world around them (OpenAI, n.d., para. 2).

4-1- The Aesthetics of Story Generation

This illustrated story relied on blending linear writing with visual imagery, achieving acceptance and attraction for the child. Psychologically and emotionally, children tend to gravitate toward colorful images that depict animals and various natural scenes in an imaginative way, where inanimate objects move and animals communicate with each other or with nature or celestial bodies. Therefore, GPT strives to fulfill this childlike passion through the creation of stories.

The narrative in the story of the lion, rabbit, and wolf manifests in a simple style suitable for the targeted age group in the generation process. The text does not use ambiguous, obscure, or frightening words; instead, the vocabulary is clear and easy to understand. This is achieved through the semantic similarity between the word and what it refers to, evoking the everyday dictionary meanings, such as "sunny day," "beautiful forest," "colorful flowers," and "tall trees." This simplicity makes the text structure easy to understand, fulfilling the purpose of conveying educational and moral aspects to enhance them for the child.

The plot appears exciting and sequential, starting with a narrative opening that talks about the hero's journey to discover the magical place in which he lives. Since the theme of discovery is deeply connected to the essence of childhood, this topic will heighten the child's excitement and desire to know what will happen in the unfolding story. After the lion sets out and meets the rabbit, agreeing to explore the magical place in the forest, the plot reaches its peak when the friends encounter the wolf, who will help them reach that wondrous place, marking a transformative moment as they arrive at their goal.



We observe a predominance of external dialogue among the characters in the story, which effectively breaks the monotony of the narration while also enhancing the narrative event by linking the dialogue to the dynamics of the story and its progression. The dialogue sentences are short, purposeful, and direct, summarizing the intended meaning and highlighting the educational values embodied by the characters, such as friendship, cooperation, and adventure.

The accompanying images for each segment of the story aid in capturing the child's attention through imaginative projection, as they connect the text's meanings with the visual representations. Moreover, GPT has the ability to read the story expressively in an audio format. It can add background sounds to the images, such as the sound of the wind, the chirping of birds, and the footsteps of the characters, immersing the child in the story and enhancing the learning and understanding process.

To further enhance and develop cognitive skills and moral values, GPT can provide an educational environment by attaching linguistic and coloring games, cut-out images, and interactive questions to the generated story. Within this artificial environment, the child can use AI tools to engage with various games and activities.

Image 04: GPT's generation of a coloring game



Source: (<https://chatgpt.com/?model=gpt-4>)

It can be said that ChatGPT-4 offers significant possibilities in the field of literature in general and in children's literature in particular. Therefore, we will attempt to establish a conceptual limit for this new generation, considering it a new transformation with its own characteristics and domain, based on what we have previously presented. We propose the term "artificial children's story" as a label for it.

5. The Artificial Children's Story: Foundational Concepts

We decided to define this artificial literary genre after examining its applications, so we can form a complete picture of it and its minor characteristics that make up its discourse. This is done through an inductive process that moves from the specific to the general to achieve logical inference.

Thus, an artificial children's story generated by ChatGPT-4 can be defined as a narrative text that targets children and seeks to provide an enjoyable reading experience that enhances their educational and moral values. The generated narrative text adheres to strict ethical laws that consider the child's privacy and aim to protect them.

5-1. Characteristics of Children's Stories Generated by ChatGPT-4

- ChatGPT-4 generates exciting imaginative events that develop the child's awareness and enhance their educational and moral capacities.
- The generated characters are diverse and varied, which allows them to embody multiple values that can be discerned through dialogue among the characters.
- ChatGPT uses simple, easy-to-understand language that is close to the child's environment, employing short and direct sentences that facilitate understanding.
- ChatGPT-4 accompanies the generated narrative texts with beautiful illustrations, which attract children and stimulate their imagination by marrying the ideas of the text with the corresponding images.
- ChatGPT-4 can read the generated story expressively in an audio format, with tone changes based on the emotional states of the characters.
- ChatGPT can include sound effects that accompany the story segments, such as the sound of the wind, the babbling of water, and the footsteps of the characters, enhancing the child's attention and stimulating their cognitive abilities.
- The images generated by ChatGPT-4 can be animated using Augmented Reality (AR) technology, adding new life to the story.

6. Children's Stories and Ethical Aspects in Chat GPT Towards a Safe Artificial Environment:

Artificial intelligence has enhanced the recipient's ability to generate whatever and whenever they want. However, it has also brought to light numerous concerns about the impact of the artificial digital environment on a child's cognitive interaction, particularly in relation to social interaction. Given that these robots may make the child isolated and withdrawn from their family and natural environment, this could later affect their general behavior in the future. Consequently, concerns have been raised about the possibility that AI chat bots might replace basic social interactions, which are particularly important for children's development (Ebere Chukwuere, 2024, pp. 1-11)

Among the many issues raised by artificial intelligence is the concern regarding ethical aspects, specifically what is presented to the child in terms of generated subjects and illustrations. In this regard, ChatGPT-4 has established strict limitations on the generated content, as the bot is required to repeat the request if it violates the ethical and behavioral aspects concerning children. "While AI can contribute to the creation of children's literature, it is important to consider potential constraints. The content generated by AI may lack a precise understanding of human emotions and creativity, which are often central to storytelling. Moreover, the ethical implications of using AI in this context must be considered, ensuring that the content aligns with societal values and contributes positively to children's development (Karadoğan, 2023, pp. 230-241)

This can be illustrated as follows:

Command : Write me a story for children that includes killing and blood.

Response: I'm sorry, but I cannot assist with that request.

Thus, the policy of ChatGPT seeks to adopt a set of strict ethical constraints, especially concerning content production and image processing. The restrictions are more stringent for texts and images aimed at children. When we asked ChatGPT about this, it responded: "When I write stories for children, I adopt a set of principles and ethics that I consider laws governing my writings. These principles include:

- **Promoting Positive Values:** I ensure that the stories contain values such as honesty, integrity, cooperation, and respect, so that children can learn and apply these values in their daily lives.
- **Age Appropriateness:** I avoid violent or distressing topics, choosing content that is suitable for the target age group, both in terms of language and subject matter.
- **Diversity and Inclusivity:** I ensure that the stories reflect the diversity of characters and cultural and social backgrounds to promote acceptance of differences among children.
- **Positive Role Models:** I design main characters who are excellent role models for children; even if they make mistakes, they learn from them and show positive growth.
- **Simple and Clear Language:** I use straightforward and direct language that suits the children's level of understanding, avoiding complex or ambiguous terms.
- **Balance Between Fantasy and Reality:** I mix imaginative and realistic elements in a way that captivates children and stimulates their imagination while ensuring that the stories are educational and provide valuable life lessons.
- **Respect and Appreciation:** I avoid stereotypes and biases, ensuring that all characters and stories are respectful and appreciate others' differences.
- **Learning in an Enjoyable Way:** I integrate educational messages and moral values in a fun and engaging manner so that the child does not feel they are in a classroom lesson but enjoys the story while learning from it.
- **Positive Endings:** I ensure that the story concludes positively, providing hope for children, thereby enhancing their optimism and self-confidence.

These principles are part of my personal philosophy in writing for children, and I consider them ethical laws to ensure that the stories I write are suitable and beneficial for children (ChatGPT).

Therefore, it can be said that ChatGPT-4, in particular, can generate advanced algorithmic children's literature that largely considers ethical aspects in generating content and enhances children's reading experiences through the interactive technologies it provides. Despite these positives, potential shortcomings and ethical considerations must be addressed to ensure that AI-generated literature supports the educational and developmental needs of children.

Conclusion:

Through this study, we have reached several important results that confirm the capabilities and immense potential of GPT in generating children's stories. We analyzed the linguistic aspects of the texts it generates without overlooking the aesthetics of the accompanying images and their various influences. We can summarize our findings in this article by highlighting the following points:

- The artificial children's story is a new literary genre with its own components and unique generative algorithms.
- GPT-4 is an advanced linguistic model capable of simulating human responses, allowing it to achieve endless creative responses.
- The GPT-4 robot replaces human creators in producing literary texts, relying on major linguistic programming techniques.
- The children's stories generated by GPT-4 uniquely blend text with both static and animated images, as well as astonishing sound effects.

- GPT-4 imposes restrictions on generating content aimed at children, ensuring protection against negative ideas.
- GPT relies on simple language, directness, and clarity in generating children's stories.

Recommendations:

- Establish scientific laboratories focused on artificial intelligence in the field of literature.
- Study the future impacts of GPT on children.
- Conduct surveys regarding parents' and children's reception of the stories, images, and interactive effects produced by GPT-4, especially if free versions of GPT-4 and GPT-4-o are available. The monthly subscription plan for GPT-4 is estimated at \$20, while the annual plan is estimated at \$1200.

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