

Comic Books as an Educational Medium for Komodo Folklore Conservation among Teenagers

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ABSTRACT

This study focuses on local wisdom concerning Komodo dragons in Indonesia. Despite the global recognition of Komodo dragons as an endangered species, cultural values such as the "*Putri Naga*" narrative are diminishing among local communities. Preliminary surveys showed a drop in cultural literacy. Only 12% of local adolescents were familiar with the narrative. The objective of this study was to address this issue by designing an educational comic book that integrates biological data with local mythological stories. The present study employed a qualitative methodology, utilising a comprehensive approach to data collection. This approach entailed a literature review, expert interviews, field observations, and questionnaires to 64 respondents. The semi-realistic illustration style was chosen to suit the audience and the theory of visual communication. This approach has been found to be an effective means of conveying biological information, including the anatomy, behaviour and habitat of the Komodo dragon, whilst simultaneously introducing myths about the dragon. Furthermore, the incorporation of visual elements, including traditional woven fabric motifs, served to reinforce local identity. The culmination of the research endeavour was the publication of a comic book bearing the title "*Eksplora: Jejak Orah*." The narrative of this comic is structured around a fantasy storyline, interspersed with factual biology and mythical narratives concerning the Komodo Dragon. The study demonstrates that well-designed visual storytelling can function as an effective pedagogical tool. The implications of this phenomenon extend to the realm of intangible cultural heritage protection and the enhancement of ecological literacy among young individuals.

Keywords: *Comic, Cultural Heritage, Folklore, Komodo Dragon, Visual Communication.*

INTRODUCTION

Indonesia is regarded as one of the most biodiverse countries worldwide, a distinction that has earned it the designation of a mega-biodiversity nation. A prime example of this natural wealth is the Komodo dragon (*Varanus komodoensis*), the world's largest lizard found only in eastern Indonesia. Komodo Island has the largest population, followed by Rinca Island and Flores Island. A decline in the Komodo population has been documented by Forth (2025), who conducted a survey of Komodo dragon-human interactions on Flores Island. Moreover, ecotourism activities have led to the alteration of Komodo dragons' natural behaviors (Ariefiandy et al., 2021; Ardiantiono et al., 2018). Beyond their ecological importance, Komodo dragons possess profound cultural significance for local communities (Sunkar, Kusriani, & Ramadhani, 2020). A renowned folktale from East Nusa Tenggara is the "*Putri Naga*" legend. According to Erdmann (2004), the narrative recounts the birth of twins to a princess, one being a human child and the other a Komodo dragon named Orah. These legends play a pivotal role in shaping local belief systems, fostering a profound sense of reverence among Komodo dragon communities. A pre-study survey revealed that only

12% of 64 adolescent respondents in the region were aware of the importance of Komodo dragons as both a source of biodiversity and a legacy of local wisdom. Despite their significance within the context of our cultural heritage, these folktales are currently facing the threat of being consigned to oblivion by the younger generation. This phenomenon, if it were to occur, would undoubtedly have deleterious effects on the well-being of Komodo dragons and their ecosystem. This precipitous decline in cultural literacy necessitates the implementation of immediate conservation efforts through the utilization of engaging media. These efforts are crucial for empowering local communities to enhance their protection of Komodo dragons from both scientific and cultural perspectives..

In the context of Komodo conservation, most recent studies have focused on verbal outreach, green tourism policies, and visitor management targeted at adult tourists (Sianipar et al., 2025; Rahman et al., 2025a; 2025b). Meanwhile, existing visual and educational media for young people, such as anthropomorphic Komodo storybooks (Mahmud et al., 2024), anthropomorphic animations (Kamil et al., 2019), or biology-focused e-magazines (Susanto et al., 2025), tend to focus on scientific aspects, including Komodo anatomy, behavior, and habitat. Existing media often misrepresent the biological visuals of Komodo dragons. Existing media, however, largely ignore aspects of cultural folklore. This creates a clear gap: the lack of educational media that successfully integrates factual Komodo biology with local folklore specifically tailored for youth. Although Kamil et al. (2019) found the effectiveness of anthropomorphic stories in Komodo conservation media for elementary school children. The researchers argued that integrating Komodo folklore could be highly effective in Komodo conservation efforts. Adolescents can gain scientific knowledge about Komodo dragons while also understanding their cultural value. This argument is based on research on the use of folklore in creative media to prevent the loss of local culture (Fairuz & Ng, 2018; Indarti & Salsabila, 2023).

To address the gap in previous studies, the researchers felt the need to create engaging and effective visual media in the form of an informational comic book. Visual storytelling in comics has been proven effective in presenting narratives while improving literacy skills (Liberto, 2012). Various studies confirm that comics are an excellent educational tool for adolescents, capable of increasing reading interest (Spiegel et al., 2013; Sumarwati et al., 2023), instilling character values (Nuryanti et al., 2020), and stimulating creativity (Hayati et al., 2020). Therefore, this study aims to fill the existing research gap by designing a printed comic book about Komodo folklore and integrating it with biological information. This novelty is expected to provide knowledge in two aspects, namely ecological conservation and cultural conservation. This comic media is specifically designed for junior high and high school students, using McCloud's (2006) comic design principles.

LITERATURE REVIEW

Most studies on the Komodo dragon (*Varanus komodoensis*) have been conducted through ecological and biological conservation approaches. For example, Wake et al. (2018) examined the importance of vegetation in Komodo conservation. Ariefandy et al. (2020) also studied five conservation programs, all of which covered ecological, biological, and tourism aspects. Conservation efforts focused on ecotourism were found to be ineffective, with ecotourism deemed inappropriate due to conflicts between the activities of residents who felt marginalized (Lasso & Dahles, 2023). Furthermore, human-Komodo dragon interactions disrupted the Komodo dragon's natural behavior (Ardiantiono et al., 2018; Ariefiandy et al., 2021). This demonstrates that conservation efforts that provide ecological and biological knowledge, and even ecotourism programs, do not meet optimal conservation criteria.

Komodo conservation efforts are not just about biological ecology. They require a collaborative effort involving all elements of society to actively participate. This participation can be fostered from a young age among local residents, for example by fostering a sense of belonging through folklore. A study by Karmadi et al. (2023) found that folklore has significant potential for environmental conservation efforts. For the people of East Nusa Tenggara, the Komodo dragon is more than just an apex predator, but an entity with its own myths. Erdmann (2004) found that locals believe in the legend of the "Dragon Princess," which tells of a princess who gave birth to twins. Both were different species, one child was a human and the other a Komodo dragon named Orah. Hasanah & Bayo (2024) also found this story about the "Dragon Princess," albeit in a slightly different version. These stories are more than just anthropological myths; they also serve as traditional conservation tools. Locals have believed dragons to be blood

relatives, and an unwritten customary law naturally protects these animals from danger and poaching. Unfortunately, rapid modernization has disrupted the oral culture of these folktales. One example is the super-premium ecotourism project launched by the government in 2019 (Hasanah & Bayo, 2024). To keep this intangible heritage alive, these narratives must be adapted into formats that suit the daily habits of today's younger generation.

Introducing cultural narratives and scientific knowledge to adolescents is best done in a relaxed and enjoyable manner. This can be done through non-textbook formats such as illustrated stories and comics. Visual storytelling through comics offers a practical solution, as it can simplify complex details while maintaining emotional engagement (Liberto, 2012). Educational comics significantly increase students' interest in reading because visual cues help them grasp the context more quickly (Spiegel et al., 2013; Hanson et al., 2017). Integrating local wisdom into comics can be highly effective for moral education (Sumarwati et al., 2023; Small, 2016). Nuryanti et al. (2020) and Hayati et al. (2020) emphasized that folklore-based comics successfully instill character values and stimulate creative thinking in adolescents without feeling like formal and rigid lectures. The use of comics containing folklore about Komodo dragons, their ecological and biological aspects, will certainly have a significant impact on Komodo conservation efforts in Indonesia. Due to its fluid nature, comics can function as an optimal medium to introduce local wisdom in the form of the folk tale "*Putri Naga*" to the local young generation in the Komodo conservation area. Several studies have integrated local culture and comics using modern design.

For example, Fairuz & Ng (2018) explored the myth of the tuyul in Malaysia. Meanwhile, Indarti & Salsabila (2023) demonstrated that the use of Kemaro Island folklore in a study of pre-wedding attire is a highly effective way to inform the public. However, its application specifically to Komodo dragon conservation is currently very limited. Visual media designed specifically for students also suffer from technical shortcomings. Kamil et al. (2019) did use an anthropomorphic animated video for elementary school students, but the design led to significant visual misinterpretations. Young audiences concluded that humans must continue hunting deer for protein, completely undermining the intended conservation message. More recently, Susanto et al. (2025) successfully designed an e-magazine about Komodo dragons for high school students. However, the content remained limited to biological anatomy, neglecting local legends about Komodo dragons.

The paucity of extant comic media devoted to Komodo dragons renders this study a noteworthy and original contribution to the field. Presently, there is an absence of printed visual communication media, particularly semi-realistic comic books, that seamlessly integrates the factual biology of Komodo dragons with the cultural heritage of "Dragon Princess." This proposed comic design study is specifically geared towards addressing the visual preferences of adolescents, thereby addressing the existing educational gap and serving as a strategic tool for preserving local cultural identity. The utilization of comic media comprising folklore pertaining to Komodo dragons, along with their ecological and biological characteristics, is poised to exert a substantial influence on the realm of Komodo conservation initiatives within Indonesia. Given its malleable nature, the medium of comics can function as an optimal conduit for introducing local wisdom in the form of the "*Putri Naga*" folklore to the local youth in Komodo conservation areas..

METHODOLOGY

This study employed Creswell's (2014) qualitative approach to design an educational comic based on folklore. The research consisted of three stages: a literature review, a community questionnaire, and comic design. The first stage began with collecting literature related to Komodo conservation, educational media about Komodo dragons, and government policies on Komodo conservation. This stage aimed to establish a strong theoretical foundation relevant to current conditions. The second stage involved distributing questionnaires to local communities, particularly to young people aged 12–16; conducting interviews with Komodo researchers; and observing research participants. The questionnaires explored respondents' ecological and biological knowledge, values, and visual preferences regarding the "*Putri Naga*" folktale. Questionnaires were distributed to 64 junior high school students (both male and female) in Flores, Rinca, and Komodo Island. Next, we interviewed researchers with direct field experience studying Komodo dragons. Combining these two steps is crucial to ensuring the accuracy of the biological data, which will be presented in a special educational section of the comic. Combining interviews with questionnaires allowed us to effectively

capture in-depth insights and perceptions of a broad audience (Saglam, 2024). Finally, we conducted direct observations in local libraries in Bandung and on various digital platforms to map the landscape of existing Komodo-related literature. Direct observation is necessary because audience perception alone cannot fully capture the reality of available resources (Patton, 2015; Creswell, 2014).

The second phase of the research revealed that respondents had very limited knowledge of the “*Putri Naga*” story. Only 12% reported having knowledge of the story. This knowledge was derived from oral traditions passed down by their parents. However, this tradition has been further eroded by parents' busy schedules and the impact of massive modernization through ecotourism projects on the environment. This finding aligns with the literature review. Information about Komodo dragons in libraries is entirely scientific and lacks cultural elements. The available literature is dominated by textbooks, and any illustrations available are limited to the ecology and biology of Komodo dragons. The questionnaire revealed that over 80% of respondents preferred a semi-realistic illustration style (see Figure 1). This situation certainly creates a clear cultural gap in Komodo conservation efforts. Involving local residents from an early age is expected to create holistic conservation efforts that involve all stakeholders in the conservation area.

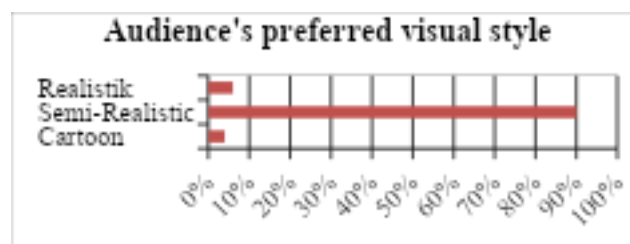


Figure 1. Audience’s Preferred Visual Style Percentage.

Source: Researcher.

The third stage of the research employed McCloud's (2006) comic design strategy. Akcanca (2020) reinforces the use of comics as a visual strategy, arguing that educational comics must balance visual appeal with factual accuracy to prevent cognitive misconceptions in science learning. Comic illustrations can significantly increase student engagement if the resulting visual style aligns with the audience's cognitive capacity (De Guzman & Andal, 2023). This strategy aligns with McCloud's (1993) concept of visual abstraction, which states that balancing realism and expressive simplification allows readers to project themselves into characters while absorbing the environment. Previous visual design research by Kurniawan and Santoso (2026) demonstrated the importance of adjusting illustration style to convey complex educational material. For example, comics can help young readers absorb content more easily, especially when dealing with complex psychological or scientific issues. The semi-realistic digital drawing techniques used in this comic bridge the gap between factual biology and folklore.

DISCUSSION

Based on the methodological aspects of the research above, the visual strategy used is a semi-realistic style to bridge the gap between traditional folklore and modern visual preferences. The narrative is strengthened by the creation of five main characters, each of whom is deliberately conceptualized to represent certain values in the story of “*Putri Naga*” that will be conveyed. The first character is a protagonist named *Nova*. It is told that *Nova* is a teenage boy who magically experiences teleportation into the world of the folklore “*Putri Naga*” through a book he is reading in class. The inspiration for the name *Nova* comes from the word 'supernova' (a star that explodes and creates a new star). *Nova* symbolizes light, hope, and the psychology of the target audience itself, namely the image of a teenager who is searching for identity. *Nova* acts as a personification and has the reader's perspective, learning to appreciate nature

and culture together with them. Behaviorally, he displays the characteristics of a modern teenager that are easy to understand. He dislikes mathematics, has a bit of a rebellious nature, but remains very energetic and cheerful. See Figure 2.



Figure 2. *Nova's Character Design.*

Source: Researcher.

The second character created was *Gerong*. *Gerong* is the human son of Princess Naga and *Majo* and was raised entirely by his father in the human realm. As a teenager, *Gerong* grew into a skilled hunter. However, his primary motivation was not hunting, but rather searching for his unmet twin brother in the dense forest. Narratively, *Gerong* is depicted as humble, approachable, and unyielding, serving as the archetype of a traditional hero in folklore. He will be depicted as a dark-skinned, curly-haired teenage boy, wearing traditional Flores attire, complete with a hunter's spear. See Figure 3.



Figure 3. *Gerong's* Character Design.

Source: *Researcher*.

Unlike *Gerong*, his twin brother, *Orah*, was born not as a human, but as a giant Komodo dragon. He was raised entirely in the wild by his mother. *Orah* is narrated as having the characteristics and primal instincts of an apex predator like the real-life Komodo dragon. His presence in the narrative emphasizes the biological and ancestral relationship between humans and the Komodo species. *Orah's* character is depicted with reference to the reality of scientific data on Komodo biology, as seen in Figure 4. The only modification made is his larger size compared to Komodo dragons in the wild. This is not intended to provide misinformation, because in the story *Orah* is indeed mentioned as having a very large body.



Figure 4. *Orah's* character design.

Source: *Researcher*.

The third character is *Putri Naga* (The Dragon Princess), a central figure connecting the real world and this mystical world. *Putri Naga* is a magical human being capable of giving birth to both a human and a Komodo dragon. This miraculous event is considered a blessing that unites the human and natural worlds by the local population. Despite her human origins, she maintains a deep spiritual bond with nature. *Putri Naga* is described as a woman who is gentle, warm, and very maternal. She is depicted as a middle-aged woman with slightly dark skin, wavy hair, and traditional Flores clothing, complete with accessories such as a crown and necklace. See Figure 5.



Figure 5: *Putri Naga's* Character Design.

Source: Researcher.

The final character is *Majo*, a human male and skilled hunter who falls in love with the Dragon Princess at first sight while hunting deer. Although his appearance in the comic panels is limited, his presence is crucial to the story's setting. He is portrayed as a determined and optimistic figure who significantly shaped *Gerong's* childhood. Visually, *Majo* is depicted as a young man with slightly dark skin, curly hair, a strong and muscular build, complete with a headband, traditional Flores clothing, and a hunter's spear. See Figure 6.



Figure 6. *Majo's* Character Design.

Source: Researcher.

The clothing and accessories in this comic are meticulously designed using digital drawing techniques. These elements reference the traditional attire of the indigenous people of Flores in East Nusa Tenggara. The clothing depicted embodies deep local beliefs. For example, the black woven cloth symbolizes spiritual strength and respect for ancestors (see Figure 7). This aligns with the central premise of the folktale, which portrays the Komodo dragon as a relative of the ancestors who needs protection from the local population. The floral motifs incorporated into the cloth symbolize life, fertility, and the harmonious relationship between humans and nature. These visual cues are applied to the character designs of *Gerong*, *Putri Naga*, and *Majo*.

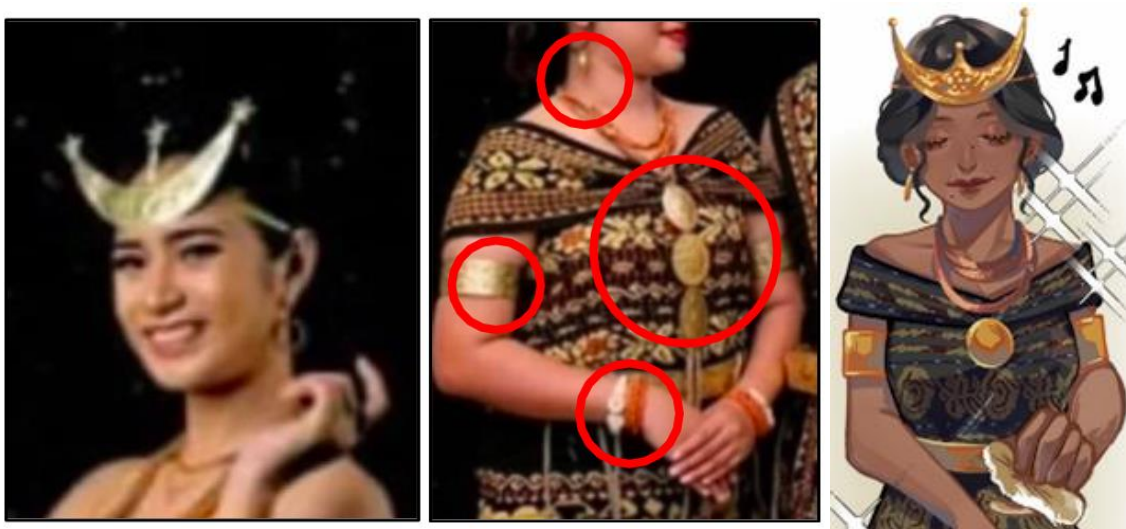


Figure 7. Traditional Visual Elements.

Source: Researcher.

In addition to the visual elements' details, color selection plays a crucial role in conveying the narrative. Color is a key factor in visual design. It forms initial impressions, stimulates interest, and determines the overall psychological atmosphere (Kurniawan & Santoso, 2026; McCloud, 2006). In this design, the color palette dominated by earth tones such as brown and brick red emphasizes the Komodo dragon's natural habitat (see Figure 8). Yellow symbolizes youth and growth, orange symbolizes warmth and happiness, and black symbolizes strength and mystery. Additionally, the blue color of *Nova's* school uniform represents the real world and symbolizes unity, peace, and modernity.

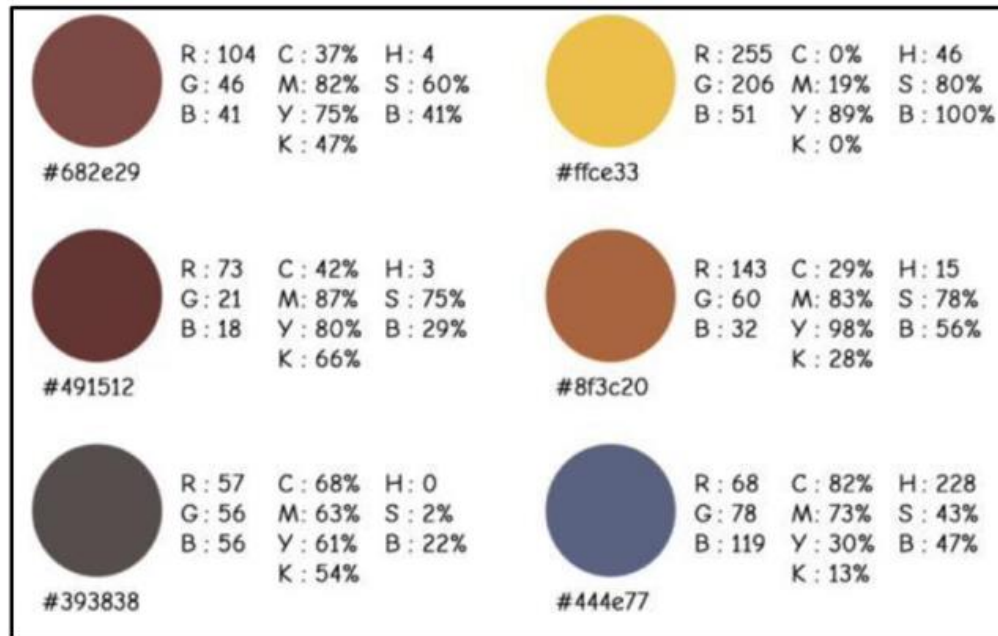


Figure 8. Color Scheme

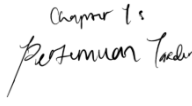
Source: Researcher.

Letterings is another visual element of comics that is crucial for conveying dialogue, narration, and sound effects (McCloud, 2006). For the main title, this study used the Rocksalt typeface by Adil Budianto and the Muara Rough typeface by Sideshow. The combination of Rocksalt's handwritten style and Muara Rough's historical feel blends a modern spirit with cultural tradition. The Gochi Hand typeface by Huerta Tipográfica was chosen for the headline and subheadline because of its expressive, handwritten style. Comic Neue by Craig Rozynski and Hrant Papazian was used for the dialogue text due to its high legibility and readability. Finally, Komika Axis by WolfBainX and Apostrophic Labs was chosen for the sound effects because of its bold, dynamic letterforms.

This narrative uses a fantasy portal teleportation structure to effectively convey factual information about Komodo dragons to teenagers. The storyline centers on the magical adventures of the main character, *Nova*. As she struggles to stay awake in class, she opens a storybook and is magically transported to the ancient, fictional habitat of Komodo dragons. This interplanetary transport narrative was chosen because it resonates with modern teen pop culture, allowing readers to discover the world of folklore alongside the protagonist. After a frantic initial encounter with a Komodo dragon, *Nova* meets *Gerong*. Through their interactions, the comic uses flashback storytelling to reveal the origins of *Majo* and the Dragon Princess. Midway through the story, after the prologue, the storyline pauses to include pages with accurate scientific information. Focusing on the Komodo dragon's external morphology, hunting behavior, and natural habitat, this structured pacing ensures the educational content does not disrupt the narrative flow. Readers are given factual knowledge that enriches their understanding of the folktale, as seen in Table 1. The story culminates with the revelation of Orah's true identity and *Nova*'s awakening after being reprimanded by her teacher in class.

Table 1. Books Structure

Page No	Contents	Visual
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1	Cover Page.		
2-3	Copyright & Table of Contents Page.		
4-5			
6-7	Chapter 1		

8-9			
10-11			
12-13	Study Time!		
14-15	Komodo Biological Information.		

16-17	Study Time! Chapter 1.		
18-19			
20-21	Chapter 1 Ending.		
22-23	Chapter 2.		

24-25			
26-27			
28-29	Chapter 2 Ending.		
30-31	Final Chapter: Bibliography.		

The final result of the research is a 32-page educational comic book titled *"Eksplora: Jejak Orah."* The folktale of *"Putri Naga"* (Dragon Princess), related to Komodo, is packaged in an accessible adventure narrative for high school students. This allows the target audience to easily project themselves and immediately dive into the story. Visually, the front cover is designed to immediately attract attention, featuring illustrations of the main characters and the title typography. In contrast, the back cover is highly functional, containing a narrative synopsis along with mandatory publication elements. Figure 9 shows the final result of the designed comic book. The comic is in portrait format with A5 size (14.8 cm x 21 cm). These specific dimensions were chosen for their portability, making it practical for students to carry while still providing enough space for clear panel layouts and illustrations. The comic is printed on 250 gsm art paper for the softcover, and 100 gsm HVS paper for the content pages. The layout uses a standard Z-path grid, in accordance with the natural left-to-right reading habit in Indonesia.



Figure 9. Comic Book Final Result.

Source: Researcher.

CONCLUSION AND RECOMMENDATION

The results of the study, which focused on the comic book *"Eksplora: Jejak Orah,"* a literary work that combines scientific content with folklore, serves as a prime example of the integration of scientific information into a narrative. This study successfully combines accurate biological facts about Komodo dragons with local cultural values. The present study contributes to the existing body of knowledge in two principal ways. In a theoretical context, it is notable that the work achieves an equilibrium between anatomical accuracy and the design of expressive characters. This approach has the potential to facilitate the engagement of adolescents with complex socio-scientific issues, thereby ensuring that their interest is not diminished. In a practical context, the study provides the East Nusa Tenggara Education Council with a ready-to-use tool to address the drastic decline in cultural awareness among young people. It is evident that cultural heritage can be most effectively preserved through its adaptation to media formats that resonate with contemporary adolescents. It is strongly recommended that controlled empirical experiments be conducted in order to quantitatively measure how much biological and cultural knowledge adolescents actually gain from reading it. It is recommended that future studies be conducted in order to ascertain whether the digitisation of the comic or its translation into specific regional dialects has the capacity to modify the responses of diverse audiences to the core conservation message.

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