



RECREATION OF FICTIONAL CHARACTERS BASED ON CLASSICAL ICONOGRAPHY FROM AN EDUCATIONAL PERSPECTIVE

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KEYWORDS

Generative artificial intelligence; robotics; fictional characters; 3D AI; arts education.

ABSTRACT

The formal aesthetic potential of three-dimensional fictional characters offers considerable educational value. Character design in both two and three dimensions is traditionally associated with the fields of design and fine arts. However, three-dimensional artistic re-creation also provides artistic tools, practices and methodologies that enrich the education of future teachers. In this three-dimensional re-creation, generative artificial intelligence was used as part of an educational activity with students enrolled on a Primary Education degree. The use of generative artificial intelligence represents an initial step in exploring creative possibilities rather than a means of producing a final outcome. A quantitative methodology based on Likert-scale questionnaires was employed to analyse, measure and reflect on the results obtained. The findings show that this digital technology complements traditional creative resources.

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1. Introduction

Artificial intelligence (AI) has had a significant impact on the creative industries (Audry, 2021), on design and visual production workflows (Hutson et al., 2023; Paglen, 2026), and on art education (Beckingham et al., 2024; Valtonen et al., 2022). This educational transformation requires a rethinking of new visual research methods applied to the visual arts (Bian et al., 2025; Irwin, 2013), encompassing both analogue and digital artistic manifestations perceived visually, as well as educational practices that are reshaping contemporary visual culture (Duncum, 2020; Rampley, 2005).

Advances in artificial intelligence encompass a wide range of machines designed to simulate human cognitive functions (Tang & Cooper, 2025). In education, this development has given rise to a broad spectrum of disruptive debates, alongside discussions focusing on its creative potential (Bae-Dimitriadis, 2024; Luckin et al., 2022; Nygren, 2025; Shah, 2023). Within art education, developments in artificial intelligence have given rise to two complementary approaches for understanding this new digital landscape: artificial intelligence in education and generative artificial intelligence in education. The former refers to the use of AI technologies in educational contexts to foster students' digital competence. The latter enables the creation of digital content, including images, audio and three-dimensional models. This development requires reflection on the learning process, ethical issues, assessment, and the essential role of materiality in art (Tang & Cooper, 2025).

This article presents an educational activity based on AI-assisted sketches of didactic characters. The aim is to present an educational innovation project centred on the design and production of AI-generated three-dimensional figures inspired by classical medieval bestiaries. These figures are conceived not only as aesthetic or narrative elements, but also as didactic mediators for presenting educational content. The activity enables students to explore how artistic experimentation with AI contributes to the creation of three-dimensional figures by analysing their design, the biases generated by AI, and digital error as a positive resource for developing three-dimensional figures within a classroom context.

The conceptual core of this article considers AI solely as a tool that builds bridges between the medieval iconographic tradition of bestiaries—understood as an analytical category with considerable symbolic significance—and contemporary visual creation. Their relevance lies not only in their aesthetic qualities but also in their educational value, placing particular emphasis on the creative process through a critical perspective on visual production.

In this regard, the flexible and permeable nature of contemporary visual culture (Duncum, 2020) makes it possible to design educational practices in art education associated with concept art. This form of visual art uses an initial idea to develop multimedia products such as animation and films. Within education, concept art facilitates workflows that streamline creative processes through applied approaches such as *model sheets* and *character design*. Consequently, these methods can be adapted to art education through accessible methodologies for the training of future teachers.

2. State of the Art: An Approach to Generative Artificial Intelligence and Its Relationship with Art Education from a Critical Production Model.

The structural foundation of artificial intelligence is algorithmic, and it has reshaped both the role of the artist in art and the implementation of new educational methodologies in art education suited to the digital era. AI-generated art presents both opportunities and limitations. In art education, educators need to understand these creative processes so that AI functions as a complement rather than a creative substitute (Hutson et al., 2023). In this respect, artificial intelligence redefines artistic creation by expanding expressive possibilities and digital techniques through the errors and biases it generates. However, its integration into art education must be approached critically to ensure that these automated, machine-based processes do not replace the reflective, material and essential dimensions of human creativity.

The digital era has brought about major technological advances (Valtonen et al., 2022), while the recent incorporation of AI has transformed the ways in which creativity can be applied in educational practice and has prompted a rethinking of methodologies in areas such as digital art (Audry, 2021; Hutson et al., 2023; Paglen, 2026) and art education for the preparation of future teachers (Luckin et al., 2022; Marín, 2023; Nygren, 2025; Shah, 2023; Vartiainen et al., 2023). Contemporary digital art is not characterised by a fragmentation of genres, styles, practices or artistic methodologies, but rather by an

exchange between its different forms. These include computer art, generative art and new media art. AI art differs from digital art in that digital artists use programming and coding as direct and essential components of their creative workflow (Boden & Edmonds, 2019). From this perspective, artificial intelligence opens up new possibilities for creativity. In education, however, it should be regarded as just another tool, since it not only challenges conventional ethical and pedagogical standards based on authorship, but may also lead to excessive technological dependence in aesthetic processes (Luckin et al., 2022; Nygren, 2025).

The widespread availability of artificial intelligence technologies, the emergence of AI art (Audry, 2021; Paglen, 2026), and the incorporation of generative artificial intelligence into education are transforming the way educational practices are conceived by introducing new approaches (Beckingham et al., 2024; Hutson et al., 2023; Luckin et al., 2022; Nygren, 2025; Shah, 2023).

This study focuses on learning how to generate and analyse new three-dimensional content based on bestiary-inspired figures used as educational mediators. These three-dimensional figures possess not only aesthetic value but also serve as tools for learning about the medieval period while critically examining their creation through AI. In this context, it is essential to understand how creative processes in AI differ from those involved in producing conventional two- or three-dimensional digital images. AI art does not provide users with tools for manipulating images or modelling three-dimensional content. Instead, visual content is generated automatically from the visual or textual prompts provided to the system. Its operation relies on the reuse of digital information through processes of appropriation or remake. Its workflow is based on algorithms that generate artworks by applying artistic styles or patterns learned from the data on which they have been trained (Hutson et al., 2023).

This differs from graphic design software used for image editing or three-dimensional modelling, such as *Maya*, *ZBrush*, *Blender* or *Tinkercad*, the latter being the most accessible for educational purposes. In all these digital applications, users begin with a blank canvas equipped with tools such as brushes and filters for creating or editing images, while three-dimensional modelling involves constructing volumes through which artists demonstrate their technical skills.

In essence, conventional two- and three-dimensional digital image processing is a practical approach designed to enable users to create or edit the visual elements of a work while maintaining control over the final result. AI art, by contrast, is based on the way in which the system processes training data provided by humans, such as visual composition or artistic style. In this way, generative AI establishes a collaborative process between human creators and the mechanical processes performed by the machine (Hutson et al., 2023).

The emergence of generative artificial intelligence in art education represents more than the introduction of an innovative technological resource. Its use in the classroom also requires critical examination of the creative process itself, together with an analysis of the biases and standardised errors generated by the system.

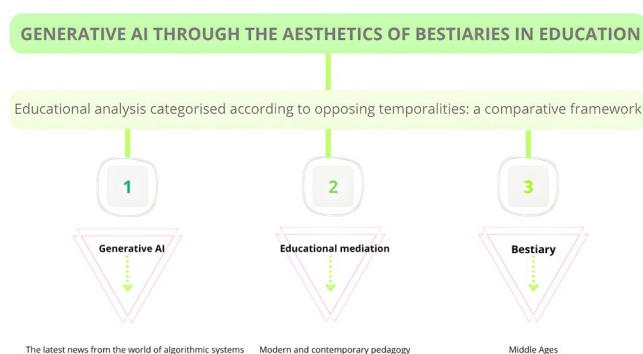
When used appropriately within a co-creative framework, AI technologies enable the exploration of the potential of digital resources, extend the boundaries of artistic expression, and open up new opportunities for artists, designers and educators within a contemporary context (Audry, 2021; Nygren, 2025).

2.1. Designing AI-Generated Three-Dimensional Figures as Educational Mediators.

The design of two- and three-dimensional figures and characters is traditionally associated with the entertainment industries. However, within art education, generative artificial intelligence—particularly through its use in the creation of two-dimensional images—is increasingly being employed as both a medium for artistic experimentation and a pedagogical resource. From the perspective of Vygotsky's *cultural psychology* (1974), the three-dimensional figure constitutes an artefact of educational mediation, bringing together innovative visual attributes, forms and narratives that convey cultural and social values. Within this process of artistic experimentation, pre-service teachers determine how the figure will be represented, analyse how AI operates, examine the errors produced by the algorithm during the creative process, treat error as a creative possibility, and evaluate the biases generated in the design. Designing a three-dimensional figure encourages students to work across different modes of representation, including formal, symbolic, aesthetic and narrative dimensions, as well as the re-creation of cultural and social values. As a result, the creative process becomes a learning activity through which students acquire both technical knowledge and interpretative skills.

The creation of bestiary figures for educational purposes involves far more than aesthetic considerations. It establishes a comparative framework across three different temporal dimensions: generative AI as a contemporary algorithmic system; educational mediation as the pedagogical framework underpinning the project and rooted in both modern and contemporary educational theory; and the medieval bestiary, which is revisited not only as an aesthetic or thematic resource but also as a vehicle for communicating values and knowledge (see Figure 1).

Figure 1. Comparative temporal framework based on the three axes of the educational experience, 2026.



Source: Authors' own elaboration, 2026.

To support the appropriate use of generative AI, a framework has been developed for classroom use (see Table 1). It is organised into three thematic blocks designed for pedagogical purposes: (a) *Symbolic analysis*: AI is used as a reference tool to compare cultural traditions and identify the moral values conveyed by classical bestiaries, without replacing the original source materials; (b) *Illustration and the creative production process*: AI serves as a starting point for the creative process rather than as a means of producing a final work. The creature functions as a sketch that students subsequently transform, while indicating the generative AI tool used; and (c) *Evaluation*: students undertake a critical analysis by asking why AI represents a bestiary figure in a particular way. This encourages discussion of digital errors, standardised visual conventions, cultural biases and digital literacy.

Table 1. Appropriate use of generative AI in education: Bestiaries, 2026.

Symbolic analysis		
Educational purpose and value	Practical applications	Role of AI and ethical boundaries
Experiment with the visual and cultural symbolism of bestiaries. Value: Critical thinking.	Identify creatures from bestiaries and describe the cultural and social values of their historical period using works such as the <i>Aberdeen Bestiary</i> , the <i>Royal Bestiary MS 12 C XIX</i> , the <i>Physiologus</i> , and <i>Picture Book for Children (Bilderbuch für Kinder, 1790–1830)</i> by Friedrich Justin Bertuch.	Synthesise historical sources and produce comparative fact sheets. Justify the analysis using the original source materials.
Illustration and the creative production process		
Create symbolic creatures. Value: Creativity.	Students define the creature's moral attributes, while AI generates an initial image. Identify the associated cultural elements.	AI-generated images serve as sketches rather than final outcomes. The final artwork is produced either manually or digitally. Acknowledge the use of AI in the creative process, but not as the authorship of the final work..
Assessment		
Document the process and critically analyse three-dimensional models created with generative AI. Value: Digital literacy and critical thinking.	Reflect in the portfolio on the prompt used, the results obtained, the creative process, authorship, the presence of visual errors or biases, similarities identified through Google Images with appropriated works, and explain how the final product was modified using manual or digital techniques.	Reflect on why the value of the three-dimensional figure lies in the reflective process rather than in the finished product.

Source Authors' own elaboration, 2026.

These materials are intended to support further experimentation with the use of AI as a starting point for the creative process. Their educational value lies in the analysis students develop when explaining how the creative process unfolds, transforming the output obtained, and reflecting critically on this digital resource. AI-generated outputs are not neutral; they contain errors, cultural or social biases and, in some cases, reflect standardised universal cultural norms.

2.2. Justifying the Bestiary as an Analytical Category: Beyond an Aesthetic and Thematic Reference.

The aesthetic and symbolic richness of bestiaries is undeniable (Clark, 2006; Dines, 2014; Ripert, 2004). However, within educational practice, they are not only visually compelling and rich in symbolic meaning, but the three-dimensional figures generated with AI also serve as initial sketches for learning educational content. They enable students to reinterpret the medieval iconographic tradition from a new critical perspective based on visual references drawn from bestiaries, while encouraging reflection on the creative process involved in generative AI.

In this educational innovation, the value of the bestiary extends beyond its aesthetic function as a repertoire of fictional creatures or beasts from classical medieval iconography. Its real potential lies in its epistemological value. Its iconographic structure is complex and reflects the medieval mindset, which sought to categorise the world by organising and assigning moral values to fictional beings. As a cultural form, the bestiary operates at the boundary between the natural and the supernatural. This makes it a particularly valuable analytical corpus for examining how a culture constructs its ontological boundaries, its collective fears, and its fictional creatures on the basis of earthly, divine, magical and supernatural beliefs.

The use of the bestiary in art education through AI-generated creation requires a new interpretation. AI-generated creatures are not neutral; rather, they are rapid responses produced from appropriated digital material on which the system has been trained. As a result, they may incorporate standardised socio-cultural conventions, biases and cultural stereotypes. Consequently, an AI-generated bestiary requires a critical analysis of how the representational process has been produced and of the data on which the AI system has been trained.

The educational approach to creating three-dimensional bestiary creatures seeks to overcome the representational constraints of conventional three-dimensional modelling in order to explore the possibilities offered by AI. The visual outputs display a distinctive narrative; their proportions and forms reflect symbolic meaning, while their colour palette is consistent with this fictional world. These visual and formal characteristics encourage students to consider how they wish to shape their figures, transforming visual creation into a reflective act. In this way, three-dimensional character design fulfils Eisner's (2002) conception of the arts as a form of knowledge capable of making visible what would otherwise remain unarticulated.

3. Aesthetic and Formal Foundations of Traditional Bestiaries.

The cultural role played by books during the Middle Ages differed significantly from that of today. Books were produced by hand in places where access to learning was available, such as monasteries, and were created in rooms specifically designated for the writing and decoration of books by scribes, known as *scriptoria*. These books were known as manuscripts, a term derived from the Latin *manus*, meaning *hand*, and *scribere*, meaning *to write*. Their illustrations were sometimes executed using gold or silver and were known as *illuminations*, from the Latin *lumen*, meaning *light*. This referred to the way in which these materials reflected and captured light when used in manuscripts.

The production of an illuminated manuscript could take several years, and, if richly illustrated, its cost could be comparable to that of constructing a medium-sized cathedral. These manuscripts were highly prized artistic objects and served purposes beyond simply conveying information. Their dissemination was limited, as printing presses did not yet exist to reproduce such handcrafted works.

In medieval manuscripts, bestiaries appeared under the Latin terms *bestiarium* or *bestiarius* (Clark, 2006). The term *bestiarius* referred to animals such as cattle, birds, or sheep forming a herd or flock. By contrast, *bestiarium* denoted a book about beasts or a place inhabited by beasts (Du Cange et al., 1883–1887). During the thirteenth century, *bestiarius* also came to mean an animal hunter (Du Cange et al., 1840, p. 667; Du Cange et al., 1883–1887). In their classical sense, bestiaries were medieval books

associated with historical traditions derived from works by Pliny, Isidore, Hrabanus Maurus and the encyclopaedias of the thirteenth century (Clark, 2006).

Medieval bestiaries (Latin: *bestiarium vocabulum*) comprise collections of fictional beasts (Clark, 2006). From a formal aesthetic perspective, their purpose was not to provide scientifically accurate representations in the modern sense. Rather, each creature embodied a philosophical idea and reflected popular and cultural beliefs. This bestiary world appears in manuscripts, paintings, and cathedrals such as *Chartres Cathedral*, *Notre-Dame Cathedral*, and *Canterbury Cathedral*, all of which feature stone carvings of creatures endowed with rich symbolic meaning (Ripert, 2004).

Medieval bestiaries are preserved in the libraries of *Cambridge*, including manuscripts *MS li.4.26* (1200–1210) (Western Medieval Manuscripts, 1200) and *MS Kk.4.25* (1220–1240), and in the *Bodleian Library, Oxford*, which houses manuscripts *MS Ashmole 1511* (early thirteenth century) and *MS Douce 151* (c. 1300) (Bodleian Library MS Douce 151, 1300). The *British Library* also holds a royal collection of two early thirteenth-century bestiary manuscripts: *Royal 12 C XIX* and *Royal 12 F XIII* (Dines, 2014). These manuscripts are among the most significant works of thirteenth-century English art.

An appropriate contemporary understanding of the concept of the bestiary, consistent with classical medieval studies, should be restricted to interpretations derived from texts associated with the *Physiologus*, provided that the term *bestiary* is understood in its traditional sense as referring to animals, beasts or fictional creatures. From a broader perspective, representations of beasts may also be found in other traditions, such as heraldic bestiaries or biblical bestiaries. The *Physiologus* is an anonymous manuscript written in Greek between the second and fourth centuries, probably in Alexandria. This influential medieval work presents a moralising narrative centred on animals, beasts and fictional creatures.

Today, the concept of the bestiary has acquired a broader meaning and is often used to refer to any collection of animals appearing in a text or artistic work. This broader usage risks diminishing the original meaning of the term, as it now encompasses animals included in medieval encyclopaedias as well as works produced for scientific purposes (Clark, 2006).

4. Objectives and Research Questions

The general objective of this study is as follows:

To examine the formal aesthetics of bestiary design in order to apply its forms and content within an art education activity.

The specific objectives addressed through the educational activity are:

To analyse and propose new ways of creating bestiary characters using artistic techniques associated with the early avant-garde movements, such as the *Exquisite Corpse*.

To use a three-dimensional generative artificial intelligence content generation tool to produce an initial sketch that can subsequently be developed through analogue techniques.

To create accessible educational materials for students based on references to classical bestiaries.

The following research questions guide the educational activity:

Is AI a valuable complement to artistic creation in education?

Can a three-dimensional character be designed using the ancient bestiaries as a source of inspiration?

Can bestiaries be understood not only as aesthetic elements but also as mediators of educational content?

These research questions are addressed in the Discussion and Findings section.

5. Generative Artificial Intelligence as a Content Creator: Designing Our Educational Activity.

The acquisition of AI-related digital competences and skills in the education of future primary school teachers should place particular emphasis on ethical issues and data bias (Beckingham et al., 2024; Nygren, 2025; Vartiainen et al., 2023). From a pedagogical perspective, it is essential to understand how to implement generative digital tools appropriately in educational contexts (Beckingham et al., 2024; Leonard, 2021; Marín, 2023; Nygren, 2025). The educational activity presented here focuses on the creation of three-dimensional characters with students enrolled on a Primary Education degree. The characters were created in sections, drawing on the principles of the *Exquisite Corpse* artistic technique.

Three-dimensional character design is traditionally associated with the field of design. However, the use of this resource in art education to generate three-dimensional characters with AI makes it possible to create collaborative and co-creative learning environments (Vartiainen et al., 2023). The AI-generated characters function as symbolic mediators. Their design was based on the Surrealist technique known as the *Exquisite Corpse*, in which a character is created in separate parts, at random, through collaboration between different members of a group. In the present activity, however, the task was completed individually rather than in groups, although group work would have resulted in greater variety in the character designs. Students were free to create either a real or a fictional character, or one inspired by the formal aesthetics of medieval bestiaries.

The following sections present the main conceptual foundations of the activity, together with the visual elements used to create the figures, the visual approach adopted, and the presentation of the educational materials developed for the activity.

5.1. Generative AI from Text to 3D: A Visual Approach to the Didactic Dimension through the Children's Picturebook.

The introduction of artificial intelligence into the classroom requires educational methodologies to be rethought and adapted. Within education, recent research has examined the use of AI text-to-image generation through applications such as *Stable Diffusion* (Martín, 2025), *DALL·E* (Marín, 2023), and *Midjourney* (Vartiainen et al., 2023), with the first two being the most widely used in research. However, the design of learning experiences centred on the creation of three-dimensional characters using AI is still in its early stages. Generative AI tools that create three-dimensional characters from text, such as *Meshy*, *Masterpiece Studio*, *Spline AI* and *Luma AI*, overcome many of the technical and artistic challenges traditionally associated with three-dimensional modelling. In doing so, they democratise this expressive medium as an educational tool, while recognising that the final product should subsequently be refined through further intervention.

The creation of AI-generated characters does not begin with a blank canvas on which the author develops an original idea. Instead, AI art relies on datasets compiled from internet sources, and its outputs are based on processes of adaptation, remake, appropriation or the structuring of a proposed formal idea. To support the creation of the figures, visual reference material was used to enrich the educational experience. The resources included children's books about animals, such as *Animalium* (2017) by Scott and Broom, *Insectarium* (2024) by Carter and Goulson, *Animalario universal del profesor Revillod: almanaque ilustrado de la fauna mundial* (2003) by Murugarren and Sáenz, *A Beastly Alphabet* (1969) by Mendoza and Low, and *Animalario* (2013) by Navarro, Gil and Queralt (see Figure 2, from top to bottom and from left to right).

Figure 2. Visual reference material, 2026.



Source: Authors' own elaboration, 2026.

Among the references consulted, the illustrated picturebooks most closely aligned with the educational activity were *Animalario universal del profesor Revillod: almanaque ilustrado de la fauna mundial* (2003) (Sáenz & Murugarren, 2003) (see Figure 3a), a split-page book that allows readers to create new animal characters, and *Animalario* (2013), which served as a more general reference source (Navarro et al., 2013) (see Figure 3b).

Figure 3. *Animalario universal del profesor Revillod: almanaque ilustrado de la fauna mundial* (2003) by Sáenz and Murugarren / *Animalario* (2013) by Navarro, Queralt and Gil.



Source: Navarro et al. (2013); Sáenz and Murugarren (2003)

Particular mention should be made of the double-page illustration from *A Beastly Alphabet* (1969) by Mendoza and Low (see Figure 4), a short children's book based on an alphabet composed of beasts. This is an excellent resource for working on the creation of fictional characters using traditional pictorial techniques, such as Indian ink to define the lines and watercolour for the background. After producing these drawings, students could then examine how artificial intelligence interprets these formal stylistic features in two- or three-dimensional images.

Figure 4. *A Beastly Alphabet* (1969) by Mendoza and Low.



Source: Mendoza and Low (1969, pp. 11–12).

These resources provide new opportunities for developing three-dimensional models, beginning with character design created through traditional techniques such as drawing and painting, before exploring how AI generates three-dimensional versions of them. This approach makes it possible to design meaningful learning activities in which the creative process is valued and error is understood as a creative resource.

5.2. Educational Materials and Visual Inspiration for the Educational Activity.

The selection of bestiaries for this educational innovation was not based solely on thematic or aesthetic considerations. The aim was for students to learn how to document the creative process, analyse how AI functions when generating a character in separate parts, identify any errors produced, examine how algorithmic biases arise, and recognise that the AI-generated three-dimensional model did not constitute the final outcome.

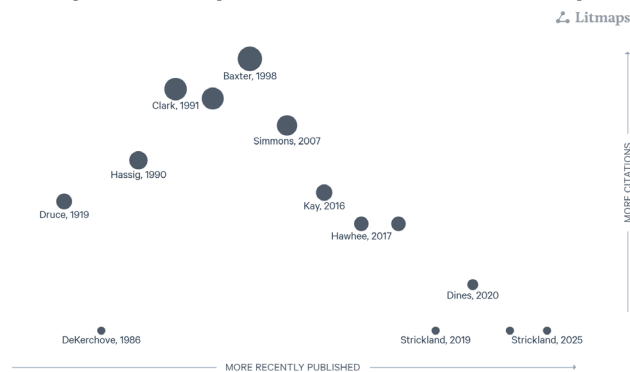
At the same time, students were introduced to creative strategies derived from twentieth-century artistic movements, such as the *Exquisite Corpse*, *frottage* and *photomontage*, enabling them to become familiar with additional creative resources that can be implemented in the classroom (see Table 2).

Table 2. *Artistic strategies, 2026*

Artistic movement and strategy.	Description
Surrealism: Exquisite Corpse	A collaborative activity in which each participant contributes to a work (text or drawing) without seeing the contributions made by previous participants, resulting in random combinations.
Surrealism: Frottage.	Rubbing graphite or charcoal over a sheet of paper placed on a textured surface to reveal new forms that serve as a source of inspiration for the composition.
Dadaism and Constructivism: Photomontage.	Layering and experimenting with cut-out photographs to create new images from a critical perspective.

Source: Authors' own elaboration, 2026.

Students were also introduced to key publications in the field (see Figure 5), identified using the *Litmaps* application, which facilitates the discovery of relevant scholarly literature.

Figure 5. *Representative publications on bestiaries. Litmaps, 2026.*

Source: Litmaps.

At the same time, students explored accessible bestiary manuscripts that served as sources of inspiration for creating three-dimensional characters to be used subsequently as educational materials (see Table 3).

Table 3. *Examples of classical bestiaries used as visual inspiration and educational materials, 2026.*

Bestiary manuscripts and description	Library
Ashmole 1511, Bodley 533, 602, 764, Douce 88. Traditional English bestiary manuscripts.	Bodleian Library, Oxford.
Fr. 25406, Fr. 25408, Rothschild IV.2.24. Bestiaries written in the French vernacular.	Bibliothèque nationale de France (BnF), Paris.
MS 8340, 8827–42. Bestiaries in Latin and French.	Royal Library of Brussels.

Source: Authors' own elaboration, 2026.

This visual reference material on bestiaries is summarised in Figure 6 (from top to bottom and from left to right).

Figure 6. *Visual documentation of bestiaries, 2026.*

Source: Bertuch and Bertuch (1801); Aberdeen Bestiary (MS 24, 12th century AD); MS Kk.4.25 (1230); Physiologus (2nd–5th centuries AD); Pedrazzini (2020).

The aim was to familiarise students with classical works featuring re-creations of creatures and beasts. These included the *Physiologus* manuscript (2nd–5th centuries AD), the precursor of the earliest bestiaries; *Liber Monstrorum de Diversis Generibus*; manuscript MS Kk.4.25 (c. 1230); the *Aberdeen Bestiary* (MS 24, 12th century AD); *Picture Book for Children (Bilderbuch für Kinder)* (Bertuch & Bertuch, 1801); and *De Bestiarum Naturis* 040 (Pedrazzini, 2020).

6. Methodology

The study was designed as an educational innovation project. A quantitative methodology was employed based on the available data collected. The research instrument followed a cross-sectional, non-experimental and descriptive design, focusing on students' perceptions of a classroom activity based on the creation of bestiary characters using AI-assisted three-dimensional modelling tools.

The study population consisted of 148 students, including 73 male and 75 female participants. A total of 116 valid responses were obtained, constituting the sample analysed (78.4% of the study population). The reliability and validity analyses of the research instrument were conducted using the responses provided by these 116 participants.

The survey consisted of *Likert-scale* questions created using *Google Forms*. The *Likert-scale* questionnaire comprised five items, which together constituted the entire survey (see Table 4).

Table 4. Breakdown of the questionnaire items: *Likert-scale survey, 2025.*

Likert-scale survey: Creating three-dimensional characters with AI	
1.	Designing hybrid three-dimensional characters was an interesting experience.
2.	Artificial intelligence enables the design and creation of three-dimensional characters from text descriptions.
3.	Designing three-dimensional characters from text can be useful for educational projects.
4.	Generative AI tools make it possible to design hybrid characters in a simple and accessible way.
5.	Designing and creating hybrid three-dimensional characters fosters creativity in the classroom.

Source: Authors' own elaboration, 2026.

6.1. Context and Participants.

The educational activity was carried out during the 2025–2026 academic year at the *University of La Laguna, Tenerife*. The activity consisted of a short classroom exercise lasting a total of two hours, during which students designed characters in separate parts using the Surrealist *Exquisite Corpse* technique.

The study population comprised 148 students, including 73 male and 75 female participants, of whom 116 completed the survey. The *Google Forms* questionnaires were anonymous and did not require participants to provide any personal information, such as their email address, age or gender, as these variables were not considered relevant to the aims of the study. Students were asked to complete the questionnaire at the end of the activity through a link provided within the assignment where they submitted their activity portfolio.

6.2. Sampling Techniques and Data Collection.

Data were collected from the responses to the Likert-scale survey, and the bar charts were analysed using *IBM SPSS Statistics* software for the social sciences. The response categories were: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree (see Table 5). Students completed the survey after finishing the activity, which involved creating a three-dimensional character in Meshy and publishing it on *Sketchfab*.

The instrument was organised into dimensions related to the educational experience, covering learning (Item 1), design and creation (Item 2), interest (Item 3), usefulness (Item 4), and accessibility and creativity (Item 5). Its purpose was to examine students' evaluations following the educational intervention, and the use of a *Likert* scale was considered appropriate for measuring subjective attitudes. However, the instrument has limitations, as it does not include objective measures of performance. Consequently, the findings reflect students' perceptions rather than direct evidence of learning.

Table 5. Responses to the Likert survey.

	Response 1		Response 2		Response 3		Response 4		Response 5	
<i>Items and values</i>	N	%	N	%	N	%	N	%	N	%
<i>Strongly disagree</i>	4	3.4%	0	0%	0	0%	1	0.9%	2	1.7%
<i>Disagree</i>	5	4.3%	1	0.9%	4	3.4%	0	0%	6	5.2%
<i>Neutral</i>	22	19%	8	6.9%	15	12.9%	17	14.7%	27	23.3%
<i>Agree</i>	50	43.1%	44	37.9%	57	49.1%	57	49.1%	50	43.1%
<i>Strongly agree</i>	35	30.2%	63	54.3%	40	34.5%	41	35.3%	31	26.7%
<i>Total</i>	116	100%	116	100%	116	100%	116	100%	116	100%

Note: Number of participants = 116.
Source: Authors' own elaboration, 2026.

The internal consistency of the five-item scale was assessed using *Cronbach's alpha* coefficient. The results indicated satisfactory reliability ($\alpha = 0.773$), exceeding the recommended threshold of 0.70 for research in the social and educational sciences (see Table 6).

Table 6. Calculation of Cronbach's alpha for the 5 items.

<i>Number of items</i>	<i>Cronbach's alpha</i>
5	0.773

Source: Authors' own elaboration, 2026.

Item-total correlations ranged from 0.415 to 0.662, with all values exceeding the minimum acceptable criterion of 0.30 (see Table 7). In particular, Response 1 showed the highest correlation with the total scale score ($r = 0.662$), whereas Response 5 showed the lowest correlation ($r = 0.415$), although this still fell within the satisfactory range. These findings indicate that all the items contribute appropriately to the measurement of the underlying construct and support the use of a composite measure derived from the aggregation of the five indicators.

Table 7. Results of the exploratory factor analysis and scale reliability, 2026

<i>Items</i>	<i>Factor loading</i>	<i>Item-total correlation</i>
<i>Response 1</i>	0.809	0.662
<i>Response 2</i>	0.721	0.526
<i>Answer 3</i>	0.783	0.618
<i>Answer 4</i>	0.754	0.557
<i>Answer 5</i>	0.577	0.415

Note. Cronbach's alpha for the scale = 0.773. All corrected item-total correlations exceeded the recommended value of 0.30.

Source: Authors' own elaboration, 2026.

To examine the dimensional structure of the scale, an exploratory factor analysis (EFA) was conducted on the five items included in the instrument (see Table 8). Prior to the analysis, the suitability of the data was assessed using the Kaiser-Meyer-Olkin (KMO) measure (KMO = 0.768) and Bartlett's test of sphericity, which was statistically significant ($\chi^2(10) = 158.06$; $p < 0.001$), confirming the appropriateness of applying factor analysis.

Table 8. Assessment of data suitability for exploratory factor analysis, 2026.

<i>Indicator</i>	<i>Value</i>
<i>KMO</i>	0.768
<i>Bartlett's χ^2</i>	158.06
<i>df</i>	10
<i>p</i>	< 0.001
<i>Answer 5</i>	0.577

Note: This table summarises the KMO measure and Bartlett's test of sphericity.

Source: Authors' own elaboration, 2026.

The results revealed a unidimensional structure. The first factor had an eigenvalue of 2.689 and explained 53.8% of the total variance, whereas the remaining factors had eigenvalues below 1.

Furthermore, factor loadings ranged from 0.577 to 0.809, exceeding the reference value of 0.40 in all cases (see Table 9). These findings provide evidence of construct validity and support the use of a single composite measure derived from the aggregation of the five items.

Table 9. Total variance explained, 2026.

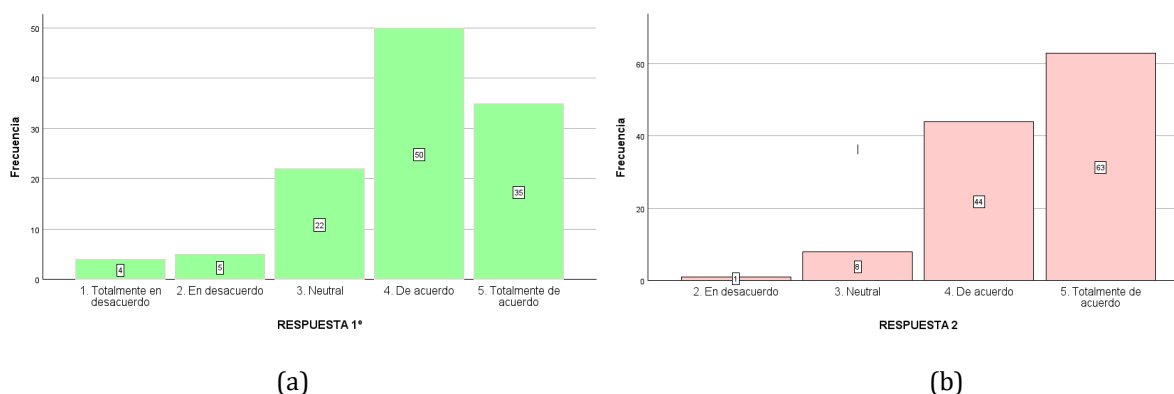
Factor	Eigenvalue	% Variance	Cumulative %
1	2.689	53.78	53.78
2	0.877	17.54	71.32
3	0.559	11.18	82.50
4	0.510	10.20	92.70
5	0.365	7.30	100.00

Source: Authors' own elaboration, 2026.

Taken together, the results of the exploratory factor analysis, along with the satisfactory internal consistency of the scale ($\alpha = 0.773$), suggest that the items measure the same underlying latent construct and support their use as a composite variable in the subsequent analyses.

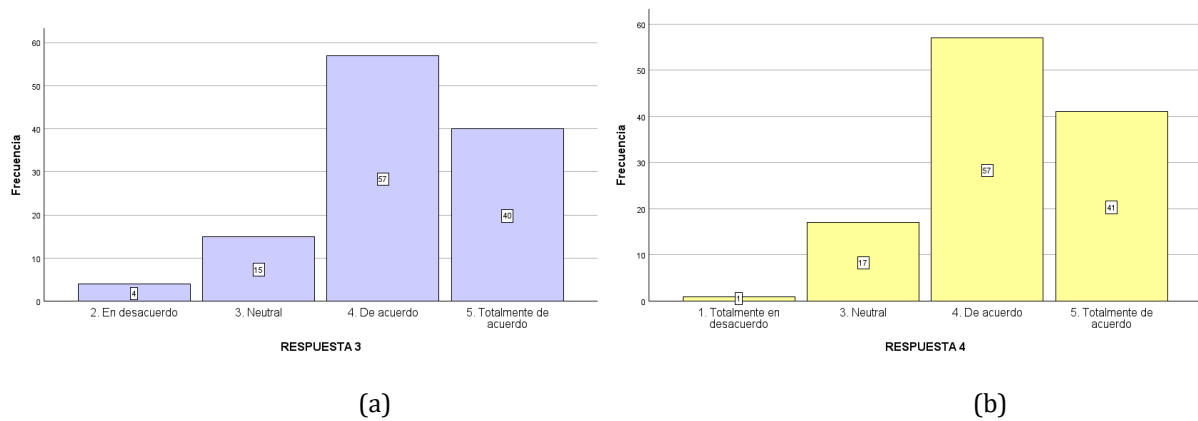
The students were unfamiliar with AI tools for creating three-dimensional characters, and the responses were predominantly positive. In response to the first Likert-scale question, which asked whether they had found designing hybrid three-dimensional characters interesting, most respondents selected strongly agree (35; 30.2%) or agree (50; 43.1%) (see Figure 7a). The second Likert-scale question asked whether artificial intelligence enabled the creation of three-dimensional characters from text descriptions. Again, most respondents answered positively, selecting strongly agree (63; 54.3%) or agree (44; 37.9%), as this was the educational activity carried out in the classroom (see Figure 7b).

Figure 7. Results of the Likert scale survey, 2026.



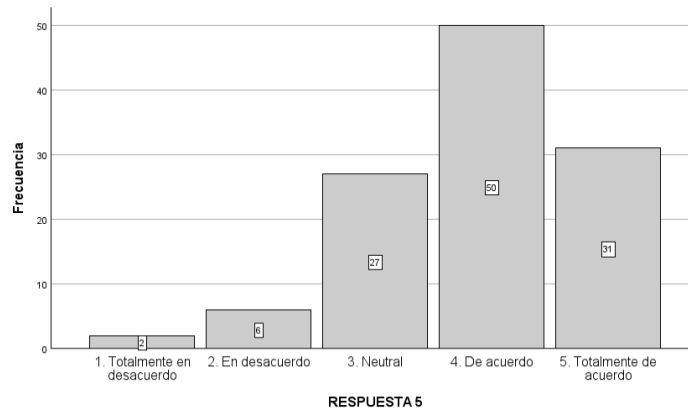
Source: Authors' own elaboration, 2026.

For the third question, which asked whether creating three-dimensional characters from text prompts could be useful for educational projects, most respondents selected strongly agree (40; 34.5%) or agree (57; 49.1%) (see Figure 8a). These findings reinforce the educational potential of AI, although they also highlight the importance of promoting a combination of analogue and digital techniques in teacher education (see Figure 8a). When asked whether generative AI tools make it possible to create hybrid characters in a simple and accessible way, the responses were again favourable, with most participants selecting strongly agree (41; 35.3%) or agree (57; 49.1%) (see Figure 8b).

Figure 8. Results of the Likert scale survey, 2026.

Source: Authors' own elaboration, 2026.

For the final question, which asked whether creating hybrid three-dimensional characters fosters creativity in the classroom, the majority of students responded positively. Most selected agree (50; 43.1%) or strongly agree (31; 26.7%). These findings support the wider integration of this resource into classroom practice (see Figure 9).

Figure 9. Results of the Likert survey, 2026.

Source: Authors' own elaboration, 2026.

The findings indicate a favourable evaluation of the educational experience. In the Learning dimension, 73.3% of participants selected either agree or strongly agree, whereas only 7.7% expressed disagreement. These results suggest that most students perceived the activity as making a positive contribution to their learning.

The Usefulness, Accessibility and Creativity dimensions also received high ratings, indicating broad acceptance of the methodology employed. The combination of AI tools and three-dimensional modelling was perceived as an accessible and effective approach to developing creative learning activities.

Similarly, the positive evaluations of the Design and Creation dimension suggest that students considered the activity to have facilitated the development of visual ideas and the creation of original proposals. However, these findings should be interpreted as a subjective evaluation of the educational experience rather than as an objective measure of the quality of the outputs produced.

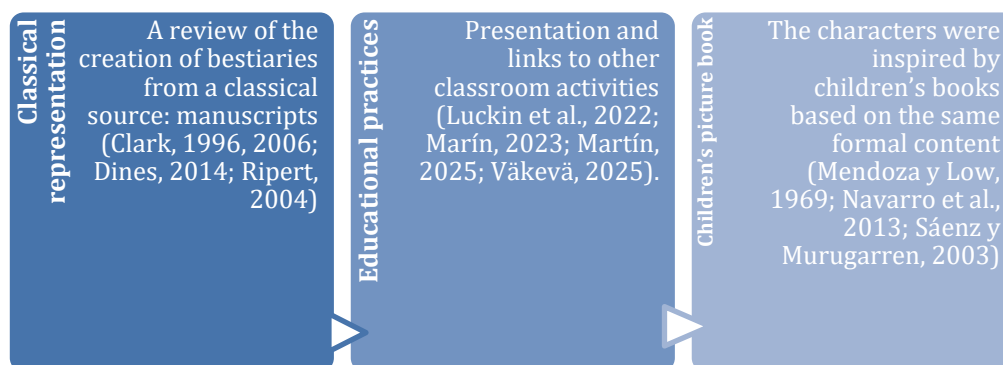
This proposal offers only a brief illustration of what can be achieved. Ideally, it should combine traditional and digital approaches, draw on previously published educational practices (Marín, 2023; Martín, 2025; Vartiainen et al., 2023) that provide new perspectives for designing educational activities, promote critical thinking, and encourage students to continue developing the outcomes through an ongoing creative process rather than treating them as definitive solutions. The aim is to foster students' digital literacy from a pedagogical perspective while promoting the ethical use of images.

7. Educational Activity Design.

The educational activity reflects on the theoretical approaches to artificial intelligence in education and generative artificial intelligence in education (Tang & Cooper, 2025).

In addition, it examines how bestiaries have traditionally been represented in manuscripts and cathedrals (Clark, 2006; Dines, 2014; Ripert, 2004), how they have been incorporated into the study of educational practices (Luckin et al., 2022; Marín, 2023; Martín, 2025; Väkevä, 2025), and how the formal visual design of these animals draws on children's picturebooks with similar themes (Mendoza & Low, 1969; Navarro et al., 2013; Sáenz & Murugarren, 2003) (see Figure 10).

Figure 10. *Development of educational activity, 2026.*



Source: Authors' own elaboration, 2026.

Historically, bestiaries have been collections of real or fictional creatures accompanied by natural, moral and symbolic descriptions. The character prompt was constructed in separate parts—head, torso and legs—to examine how generative AI produced three-dimensional models. Only occasionally did the system generate outputs that did not correspond to the text prompt provided; in most cases, however, it produced formally detailed figures. This was followed by an analysis and reflection on the didactic characters to explore how the activity could be implemented in a primary school classroom. Each creature conveys educational content, and its narrative is linked to the school curriculum.

AI-generated three-dimensional characters make it possible to create animals while reducing the need for complex automated tasks such as constructing the base structure, modelling and texturing. This allows students to focus on the educational purpose and narrative of the characters. Rather than eliminating the creative dimension, this automation requires greater precision when writing prompts, while reinforcing the value of both traditional and digital processes and encouraging students to evaluate both the outcomes and the design process.

8. Results

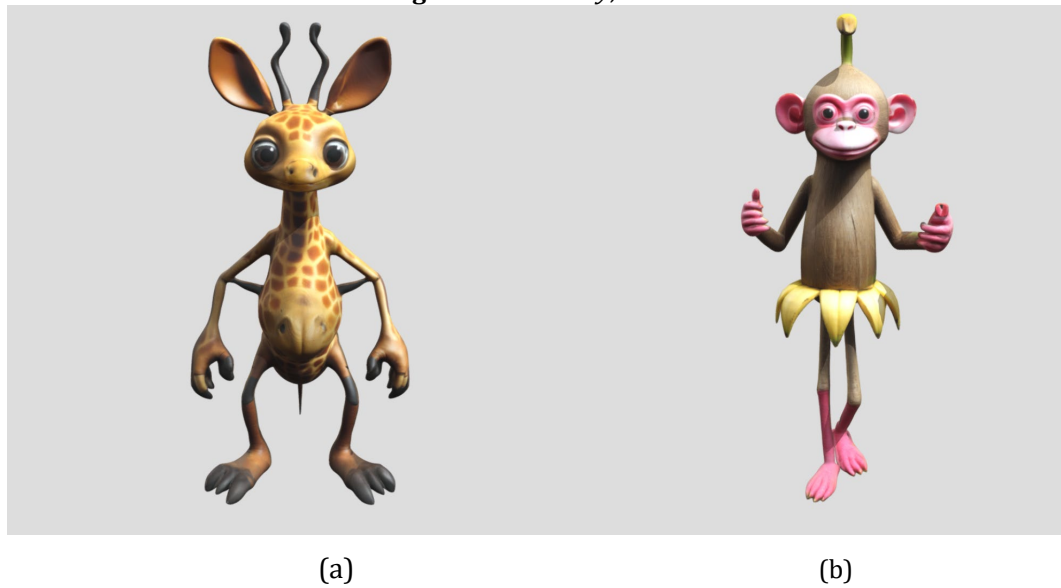
The educational activity was carried out during the 2025–2026 academic year with students enrolled on the Primary Education Degree programme who were taking the fourth-year module *Teaching and Learning in Visual and Plastic Arts Education*. A total of 148 students created AI-generated three-dimensional characters as part of a short classroom activity.

The portfolio consisted of creating a character in *Meshy* using the text-to-3D function. Students were required to design a didactic character composed of separate parts. Their portfolio included the prompts in both Spanish and English (translated using *DeepL*), screenshots of the modelling process showing the untextured model and the coloured textures in *Meshy*, together with links to their projects in *Meshy* and *Sketchfab*.

The following examples illustrate the students' work. The first image shows a character created by combining different animal parts using the prompt: *Create a character with the head of a giraffe, the torso of an ant, and the legs of a platypus* (see Figure 11a). Similarly, the second model was created using the prompt: *Create a character with the head of a monkey, the torso of a banana, and the legs of a flamingo* (see Figure 11b). In both cases, because the prompts lacked detailed descriptions, the resulting three-

dimensional models lost definition when the AI generated their formal characteristics. The educational purpose of both characters was to support the teaching of different animal species.

Figure 11. *Bestiary*, 2025.

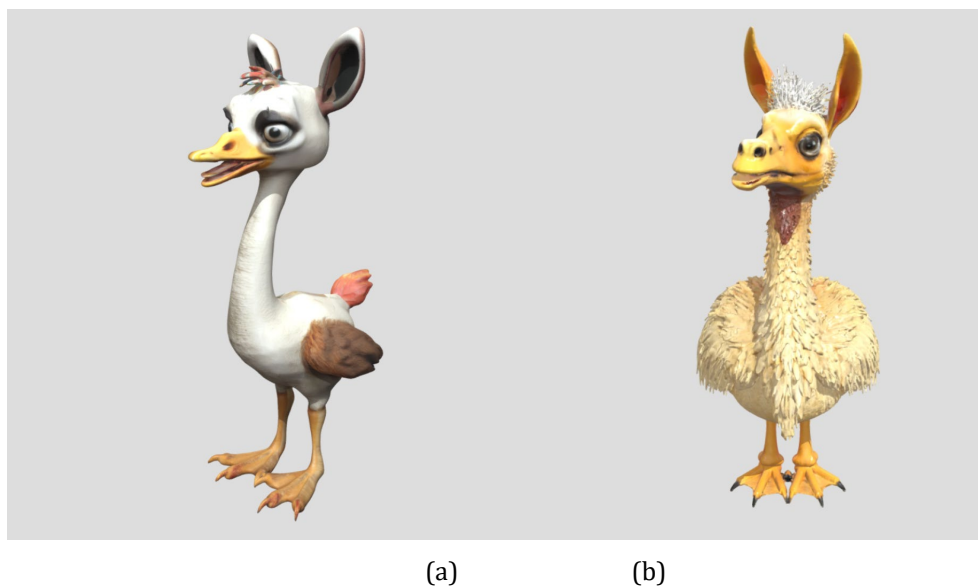


Source: Mario Martín García / Héctor Suárez Acosta

The following pair of characters was created by the same student, although only the prompt for the first character was provided: *Create a character with the head of a llama, the torso of an ostrich, and the legs of a chicken* (see Figures 12a and 12b). The educational rationale presented by the student was as follows:

The character Llamichu is a combination of different animals, encouraging children to move beyond conventional ways of thinking. Through the creation of “impossible animals”, pupils practise combining ideas in imaginative ways. Llamichu is not only an entertaining character but also a pedagogical tool that fosters imagination and scientific curiosity. Through this character, children learn that creativity is a source of both learning and enjoyment.

Figure 12. *Bestiary*, 2025.



Source: Alondra Quintero Quintero

Through three-dimensional character design, educational characters become symbolic mediators. These figures make it possible to address content from other curriculum subjects through interdisciplinary activities, promoting the understanding of educational content by means of three-dimensional visual metaphors.

9. Limitations of the Study.

This AI-based activity was designed to align with the primary education curriculum and consisted of a short classroom exercise. Given the brief nature of the educational intervention, it was not possible to explore in greater depth issues such as AI bias or whether the technology represents more than simply an innovative resource. Nor was it possible to recruit a larger sample or include a comparison group to contrast the findings, and a more extensive longitudinal study is still needed.

One of the main limitations of the study was that the activity could not be conducted in a classroom equipped with dedicated technological resources. Instead, students used the computers or mobile devices that they normally employed for their classroom work. Nevertheless, the group showed considerable interest, the activity was successfully implemented, and students evaluated the experience positively.

Although the methodological design indicates a positive evaluation of the educational experience, it has limitations in establishing causal relationships or demonstrating actual improvements in academic performance.

10. Discussion and Findings

Based on the findings, AI can be regarded as a technical tool capable of interactively generating valuable educational materials. However, in the education of future teachers, it should be understood as a sketch or an initial image that requires further development, recognising that human creativity cannot be replaced by mechanical processes.

The five-item questionnaire used in this study is limited, as it assesses only five dimensions: Learning, Design and Creation, Interest, Usefulness, and Accessibility and Creativity. Future research should expand the number of items within each dimension to enable a more comprehensive analysis of educationally relevant constructs, such as pedagogical impact, digital competence, visual literacy and artistic quality. An important limitation should be acknowledged here: these dimensions were not measured directly but instead had to be inferred from the existing constructs.

With regard to the research questions, the first asked whether AI can serve as a complement to artistic creation in education. Although it provides effective three-dimensional modelling, it should be regarded as a volumetric resource that requires subsequent artistic intervention, whether through analogue or digital techniques. Future projects could explore the character's habitat, formal and physical characteristics, and didactic function in greater depth. The second research question asked whether it is possible to create a three-dimensional character inspired by historical bestiaries. The findings demonstrate that character generation generally performs well, although some elements of the prompt are occasionally omitted. A more comprehensive activity would involve creating characters from images of historical bestiaries examined by students (Clark, 2006; Ripert, 2004). Another possible activity would be to draw the characters on paper using illustrated picturebooks with similar themes as visual references (Mendoza & Low, 1969; Navarro et al., 2013; Sáenz & Murugarren, 2003). Translating these analogue creations into digital formats would encourage the integration of traditional creative processes with digital ones.

Students evaluated the educational experience positively in the survey. From the participants' perspective, the incorporation of digital technologies enriched the creative process and facilitated the expression of visual ideas. From a pedagogical perspective, these perceptions suggest that the activity has educational value in promoting active methodologies based on the design of digital artefacts. However, the instrument measured perceptions only; it did not include performance assessments, pre- and post-intervention evaluations, or assessment rubrics. Consequently, while the findings indicate that students perceived educational benefits, they do not demonstrate that these perceptions translated into improved learning outcomes.

From a theoretical perspective, the findings are consistent with constructivist approaches that argue that learning is strengthened when students create meaningful products. They also align with recent research on generative AI in education, which highlights its potential to expand creative possibilities. At the same time, the findings point to the need for more sophisticated evaluation models. Constructs such as digital competence, visual literacy, artistic quality and learning rigour require specific instruments and objective measures to be assessed validly. Consequently, this study provides evidence of the

acceptance of the proposed methodology but does not allow definitive conclusions to be drawn regarding the development of these competences.

11. Conclusions

The creation of AI-generated three-dimensional characters opens up new possibilities for combining analogue and digital processes within this type of educational activity. This integration of both creative approaches can be extended to other classroom activities based on traditional artistic practices, such as character creation using a *model sheet* or *character design*, before transferring the results to generative AI to observe the transformations produced.

AI is a tool that complements visual creative processes. This article presents an interdisciplinary AI-based activity grounded in experimentation, allowing attention to be directed not towards complex modelling skills but towards its educational application and the use of the resulting images as materials for further artistic intervention. The activity draws inspiration from current applications of AI in art education (Bian et al., 2025; Leonard, 2021; Marín, 2023), educational theory (Beckingham et al., 2024; Luckin et al., 2022; Nygren, 2025; Väkevä, 2025), and representations of animals and bestiaries in children's illustration (Mendoza & Low, 1969; Navarro et al., 2013; Sáenz & Murugarren, 2003). As a result, the educational experience builds upon contemporary practices in education.

The future teachers produced work of an exceptionally high standard, exceeding the expectations of the proposed activity. They reflected critically on the creative process, recognising the importance of structuring the prompt used to generate the three-dimensional figure into separate sections corresponding to different parts of the character. They analysed this process and related it to contemporary methodologies based on visual culture (Barone & Eisner, 2011; Duncum, 2020; Irwin, 2013).

The principal contribution of this study lies in demonstrating that students perceive the use of AI for three-dimensional bestiary character modelling positively. However, although the data provide strong evidence of positive perceptions regarding interest, usefulness and creativity, claims concerning learning, digital competence and artistic quality remain plausible pedagogical hypotheses that require verification through more robust methodological designs.

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