Analysing the Impact of Generative AI in Arts Education: A Cross-Disciplinary Perspective of Educators and Students in Higher Education

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Abstract: Generative AI refers specifically to a class of Artificial Intelligence models that use existing data to create new content that reflects the underlying patterns of real-world data. This contribution presents a study that aims to show what the current perception of arts educators and students of arts education is with regard to generative Artificial Intelligence. It is a qualitative research study using focus groups as a data collection technique in order to obtain an overview of the participating subjects. The research design consists of two phases: (1) generation of illustrations from prompts by students, professionals and a generative AI tool; and (2) focus groups with students (N = 5) and educators (N = 5) of artistic education. In general, the perception of educators and students coincides in the usefulness of generative AI as a tool to support the generation of illustrations. However, they agree that the human factor cannot be replaced by generative AI. The results obtained allow us to conclude that generative AI can be used as a motivating educational strategy for arts education.

Keywords: generative artificial intelligence; artificial intelligence in education; educational technology; arts education; higher education

1. Introduction

In recent years, the evolution of Artificial Intelligence has seen a broad development in its practical application in different fields of knowledge [1], representing a technological revolution that, although heralded by researchers in computer engineering, is still a new paradigm, and its impact and implications need to be analysed.

Although the term Artificial Intelligence (AI) emerged in the late 1950s, the concept has been discussed since the early 20th century, when pioneers such as Norbert Wiener proposed that intelligence could be simulated by machines [2].

Currently, definitions of AI can vary depending on the context or application. Based on the contributions of various authors, AI can be defined as a series of computer systems that perform tasks that simulate human intelligence, such as machine learning, reasoning, perception, natural language understanding and decision-making processes, among others [3–6].

The potential of AI in various fields is constantly evolving in the field of research; however, this type of technology has approached people’s daily lives through the ubiquity of smart devices and internet connectivity, sometimes without being aware of it [7].

AI chatbots (intelligent conversational computer systems that think, learn and complete tasks in combination with humans or independently), considered as generative AI, have become popular since the launch of ChatGPT in November 2022 [8].

In this sense, in an educational context, Artificial Intelligence provides the potential to address some of today’s educational challenges and contributes to the innovation of teaching and learning practices.
1.1. Artificial Intelligence in Education (AIEd)

Artificial Intelligence in Education (AIEd) refers to the use of AI application technology or software in educational environments to facilitate the teaching and learning process as well as the development of student competencies.

As Artificial Intelligence continues to advance, the potential of this technology to transform education is growing [8–14].

This explains why researchers from different fields, such as computer science, philosophy, communication, sociology, neuroscience, management and psychology, are involved in the interdisciplinary field of Artificial Intelligence in education and teaching [15].

These advances in educational technology offer more personalised and effective learning experiences [11,16–19], as well as new areas of research combining AI and learning sciences to improve teaching and learning through digital technologies such as Educational Data Mining (EDM) or Learning Analytics (LA) [20,21].

According to Chassignol et al. [13], AIEd also contributes to educational inclusion and equal opportunities, helping to respond to students’ needs and enabling individualised learning. According to Balcombe [8], AI chatbots offer accessible and convenient support that helps to overcome communication barriers.

However, it is worth bearing in mind some criticisms of AIEd, such as that it may perpetuate some bad pedagogical practices, the introduction of surveillance in classrooms and its consequent data collection, the over-computerisation of teaching, etc. [22–24].

Three paradigms can be distinguished in the use of AIEd [25]:

1. Paradigm One: AI-directed, learner-as-recipient
   The AI represents the knowledge domain and directs the learning processes while the learner acts as the recipient of the AI service to follow the learning pathways. This paradigm is based on behaviourism, which emphasises the construction of content sequences that lead to the correct performance of the learner.

2. Paradigm Two: AI-supported, learner-as-collaborator
   The AI is used as a support tool, while the learner works as a collaborator with the system. In other words, the AI system relinquishes its power of control to focus on the individual learner’s learning process. This paradigm is based on a cognitive and social constructivist view of learning.

3. Paradigm Three: AI-empowered, learner-as-leader
   AI is used to enhance learning and learners take ownership of their learning. This paradigm reflects a complexity theory perspective that views education as a complex adaptive system, where a synergistic collaboration (e.g., learner, instructor, information and technology) in the system is essential to ensure the enhanced intelligence of the learner.

It should be emphasised that AIEd is not only about the application of AI technology but also involves an integration of pedagogical, social, cultural and economic dimensions during the technology application processes [26].

Following Fawns [27], putting technology first, as a driving force in the learning process, makes us susceptible to technological or pedagogical determinism; we should advocate for an “Entangled Pedagogy” in which the various elements involved in educational activities (technology and teaching methods) are combined in a situated manner.

1.2. Generative Artificial Intelligence in Arts Education

Generative AI refers specifically to a class of AI models that use existing databases to generate new content that reflects the underlying patterns of real-world data [24,28].

In the context of interacting with Artificial Intelligence, so-called prompts are used, which are instructions that allow us to give direction to a language model [17]. In other words, they are phrases that we use to ask, propose or order the AI what we want to stimulate a response. In this regard, it is necessary to recognise the limitations of AI
chatbots, such as poor semantics, biases and the need for qualitative studies to improve the user experience [8].

According to Sun et al. [29], well-defined prompts can help guide the conversation effectively, allowing the user’s topics of interest to be addressed. On the other hand, poorly defined prompts can lead to unfocused and unproductive conversations. Therefore, it is crucial to pay attention to the quality of prompts and ensure that they are well constructed in order to achieve good results.

To achieve optimal results in their use, prompts should include: (a) topic, (b) style, (c) tone, (d) context and (e) context information [30].

In the creative arts, generative AI tools have been instrumental in the production of high-quality artistic media, including visual arts, music, literature, video and animation [31].

Image generation AI allows, through advanced software, for the generation of images from input data, which can be an existing image or a textual description. This is achieved through algorithms such as neural networks [4].

The generative capabilities of these AI tools are fundamentally altering creative processes, leading to a reinvention of creativity in many sectors of society, including education [3,31].

Recent movements in arts education (including, among others, visual culture, choice-based art and social justice-oriented curricula) generally assume an anthropocentric perspective [32]. Digital imaging software has moved from replicating the physical act of painting (1980s) to offering more complex functions using interactive algorithms, e.g., Google’s AutoDraw or GauGAN (NVIDIA Research), which, thanks to the generative adversarial network (GAN), generate new images based on a provided dataset.

The careful fusion of art and technology to significantly impact the user on an emotional level is one of the promising lines of the future, where the boundaries between human emotions and Artificial Intelligence are blurring.

One of the essential applications of Artificial Intelligence in interactive art installations is to make the artwork respond to audience behaviour in real time through machine learning algorithms using biometric data [33].

The role of AI in higher education training programmes is a field with great potential. As an example, it is worth mentioning the study carried out by Albar Mansoa [4], which investigates the knowledge of Fine Arts students regarding AIs to generate images. This study indicates that there is great convergence in recognising AI as a useful tool, for its speed in generating ideas and for serving as inspiration in the creative process itself; however, there are also certain negative attitudes among the students themselves towards the use of AI to generate images. It is seen as a threat to artists and creators, devaluing their work, and there are concerns about the ethical use of AI.

In this sense, several authors recommend legal regulation of the process of content creation and distribution of products made with generative AI [8,34].

The evolution of AI research over the last decade suggests that its practical application in education and the arts will have a considerable impact. Studies are needed to explore what this application should look like in order to ensure that this new tool is correctly oriented in education and learning in the arts. This case study explores a new line of research on the application of AI and how it is being perceived by both educators and students.

2. Materials and Methods

The expected rigour of the results of this research requires the use of qualitative and exploratory methods to generate information. In order to study the impact of generative AI in education from a global perspective, initial results are required to guide future research, and these results must necessarily be generated from a qualitative research process. In this case, the focus group technique has been chosen in order to extract information about the experiences, opinions and perceptions of selective samples.
2.1. Objective

The aim of this study is to explore the perceptions of arts educators and arts education students about the application of generative Artificial Intelligence in the field of arts education to serve as a starting point for future research on how to enrichingly apply AI in this field.

2.2. Sample

The selective samples for both focus groups are based on these characteristics:

- Focus group 1: Multimedia Communication students
  Group of five students with an average age of 24 enrolled in the Creative Design course of the Master’s Degree in Communication and Multimedia Development at the University of Burgos. They are students of a professionalising master’s degree, with a curriculum focused on creativity, technology and communication strategy. This group has in common that they share knowledge and experience on digital illustration and creativity, as well as the use of technological tools looking for efficiency and effectiveness. Five students were randomly selected from those who volunteered to participate in this group.

- Focus group 2: Educators of the Audiovisual Communication and Advertising Department
  Five educators with an average age of 32 and linked to technical and/or creative subjects in the Audiovisual Communication and Advertising Area. They are teachers in the first years of their academic career. They teach subjects related to illustration, image analysis or character and scenario design. Volunteers were requested from all the teachers in the communication department who met these criteria, and the group was formed with the five who came forward.

2.3. Instruments

This study aims to extract exploratory results due to the scarcity of specific academic literature on the subject. These exploratory results are extracted from a qualitative analysis that, although it does not, on its own, allow for a global and definitive understanding of the impact of AI in education, will serve as support for future research and to validate or refute part of the academic literature that addresses this topic through other systems of measurement or analysis [4].

In this context, the qualitative analysis technique of focus groups was selected as it allowed for the collection of shared ideas based on the generation of a space for group discussion and reflection [35] so that the results are not merely opinions [36] but are reinforced by the stimulation of group rhetoric. The focus group technique was discarded because it was intended to collect perspectives and reflections from very selective samples.

The information generated in the two focus groups was processed using ATLAS.ti version 9.1.7 software because of its ability to organise data and search for patterns [37]. Following the transcription of the focus group sessions, an analysis of each of the themes was carried out by identifying recurring arguments and exploring the relationships between key concepts. This methodological approach facilitated a deeper understanding of participants’ perceptions and opinions on the topic, highlighting both common concerns and divergent perspectives.

2.4. Procedure

The group was stimulated by addressing recurrent topics in academic literature on generative Artificial Intelligence and education for discussion and experimental testing: cost and efficiency of AI, human–AI interaction, creativity, student training and ethics and deontology. This served as an argumentative support and inspiration for group reflection. This method encouraged debate and served as an argumentative tool, which enriched the exchanges of perspectives and thus strengthened the results.

The research design was carried out in two phases, which are explained below.
2.4.1. Experimental Test: Creation of Illustrations

An experimental test was defined and used to stimulate the reflections and arguments of the focus group, based on the generation of a series of images that were shown to the participants in each focus group. This method has been used in sociological research and has been shown to facilitate argumentation on abstract topics [38], while enhancing creativity for rhetoric and argumentation [39], although it is a technique pending standardisation methodological issues [40].

- Independent variable: authorship

The variable that was modified to generate different results was who or what was responsible for making each illustration. The authorship of AI-generated images is a matter of open academic debate, regarding the intentionality and artistic creativity of humans versus machines [41]. We decided to use illustrations created from both educational and professional backgrounds in order to facilitate the argumentation in the focus group based on their possible characteristics. Four illustrations were randomly selected from those made by students as part of a drawing exam in the ‘Image Editing and Texturing’ subject of a Video Game Design degree. Additionally, a professional illustrator was given the same instruction as the students to generate another outcome that could help the focus group participants elaborate their arguments. Subsequently, four other images were generated using DreamStudio Artificial Intelligence, based on Stable Diffusion [42]. In neither case was there a process of selection, supervision or correction, but the generated images were shown to the focus group participants as they were generated by the human illustrators and the Artificial Intelligence.

The outcome of each illustration or group of illustrations would serve to stimulate responses and discussion. These images, when shown to the focus group, served to stimulate the creativity of the participants, fostering the emergence of arguments, reflections, and exchange of perspectives. These results, when shown to the focus group participants, enhanced the creativity of the different opinions, arguments and perspectives. Therefore, the experimental test plus its interpretation generate a dual perspective that brings strength to this methodology.

- Control variables: format and prompts

The same prompts were used for the generation of illustrations, both for the AI tool and the illustrator and students: an illustration of a panda bear (character) dressed as a devil (context) eating a slice of pizza (action). A total of 9 illustrations were generated.

The illustrations were presented in print, in a square format of 30 × 30 centimetres, which ensured that there was no conditioning of perception. All the images could be viewed at the same time, and the participants were even allowed to move them freely in order to facilitate their expression and elaboration of arguments.

The figure below shows the illustrations generated by the AI tool, the professional illustrator and the students (Figure 1).

![Figure 1. Illustrations generated by the AI tool, the professional illustrator and the students.](image-url)
2.4.2. Conducting the Focus Groups

Two one-hour focus group sessions were conducted face-to-face. Participants were not informed of the topic to be discussed until the beginning of the session, in order to avoid participants’ opinions and reflections being influenced, or even biased, by a covert preparatory process. The aim was to obtain the point of view of these particular samples, so outside opinions and other research in the field of AI could have contaminated the results.

On the other hand, the topics posed by the moderator were designed to avoid leading or suggestive questions, which could have implicitly conditioned the answers. These topics were based on previous academic literature analysed in this study and were grouped into several blocks. The debate was conducted and adapted to take into account the participants’ interventions and the evolution of their arguments.

At the beginning of each session, participants were informed of the type of methodology being followed, as well as the objectives of this study. Afterwards, the experimental test images were shown, explaining in detail which ones had been developed by students, by the professional illustrator or the AI. The moderator then introduced the topics and, in some cases, encouraged the less active participants to intervene.

3. Results

Based on the inductive analysis of the accounts of the students and professionals who participated in the focus groups, the results have been grouped into the following categories: (a) cost and efficiency of AI; (b) AI–person interaction; (c) creativity; (d) training of future artists; (e) ethics and deontology.

3.1. Cost and Efficiency of AI

There is a consensus in both the student and teacher groups that AI can bring down costs in certain jobs, particularly by speeding up the creative process; hence, there is some fear that some jobs may be replaced by AI.

“With the business mentality that we have today, where you minimise costs, play it safe, cut costs as much as possible to play it completely safe; profit, profit, profit, profit, profit. I mean, AI is like…” S6

In this sense, students point out the difference between the “product” itself, and what is involved in making “art”. Teachers, in the same vein, talk about the difference between “art” and “craft”, taking into account the productivity costs of one and the other.

“I think the whole AI phenomenon is a phenomenon that is economic, I mean, there is an economy behind very expensive servers, and applications that are to be made to increase productivity. So I wouldn’t say it affects art so much as it affects craftsmanship”. E5

For the students, it is the critical capacity of the consumer that will determine the value of the product generated by AI or that generated by a human. It is assumed that, on many occasions, the client or end consumer who is guided by AI does not question the quality of the result itself, as they do not have the theoretical–technical knowledge to know if it is what best suits their needs. In many cases, this outcome is successful because it is based on the consumer preferences of the majority. Here, students refer to the difference between the customer–consumer and the customer–artist, with the former being less critical.

“And I tell you, I think that many times clients prefer to have control, even if it doesn’t make any artistic sense or anything, control over what they ask for, rather than letting someone else tell you no, this is shit, I’m going to do it, I propose you to do this other thing, which is more aesthetic, it’s more beautiful and makes more sense”. S3

It is worth noting the reflection of some professors that, in terms of cost/benefit, AI will affect beginner artists the most, as the expected quality of their work will compete with the result generated by AI, which does not affect experienced artists.
“So you can replace artists who are starting out and if you don’t give them a chance, those who are starting out because there is something else that does it for free. That artist who is starting out can never be an established artist. I think that’s the problem”. E4

For all participants, AI is a tool that is here to stay and will have benefits for students, beginners and professionals alike.

Regarding the economic cost of AI, professors have expressed that the foreseeable evolution of AI tools, now mostly freely available, may increase in the future.

“…is that it’s really, even if it’s free for us now, it’s very expensive. If not, I guess it’s being free now to feed those models, but if you don’t get enough funding, I guess it will start to be paid for as well”. E4

As AI tools become more specialised, many will become paid tools, or at least parts or functions of them.

“Of course, that’s what I was saying. I think it’s already starting to happen. If we look at the more normal digital tools for image creation, Adobe’s Photoshop package right now has artificial intelligence built in, but it already works for a fee”. E5

3.2. Human–AI Interaction

There is a common perception among students and teachers of the “frustration” that is often experienced when trying to converse with an AI:

“So that’s the importance, above all, the importance between taking a human person with whom I can talk, with whom I can converse, with whom I can surely understand, or a machine that, although it imitates a human being, it is still a machine and is not very understanding, it does not have a general and global understanding of the world, but it has been made to swallow a lot of things and from there it gets some results”. S6

In relation to the difficulties in establishing effective communication, there is a perception among students that AI cannot understand the whole person because it lacks “empathy”. It is not possible to establish, on the user’s side, feedback on the creative process.

“When you work client-machine, client-artist, there is a thing, there is a part of empathy, you know? As my colleagues have said, that a machine can never understand, for example, I don’t know if I talk to you, I do like it, but a machine doesn’t understand this, but I as a person do understand”. S4

The professors suggest that the difficulty in human interaction with AI is due to the fact that it is normally accomplished through a single channel, for example, voice, and does not allow the use of other complementary channels to express an idea, such as visual, gestural, etc.

“The form of interaction, simply what I was saying: you can draw a person a little picture, you can point at them, you can show them in the image. In the case that we are talking about generative AIs, what is wrong? What do you want to change in the AI? Well, there are starting to be more spatial tools, but you can’t draw shapes and do something about those shapes, but at the moment I think it’s much more complicated how to communicate”. E5

For learners, it is crucial to be much more precise with an AI with regard to the input or instructions you give it to obtain a particular result, as it will not be able to pick up other contextual information.

“It’s more the accuracy with which you give the commands. If you say eat, what do you do when you eat? You use a fork”. S7
3.3. Creativity

Underlying the students’ discourses is the idea that AI does not create new content, but merely collects existing data and imitates them, so that the derived images are more homogeneous, in this case, than those produced by the art students.

There is some debate in the student group about what counts as creativity. In some discourse, human learning, which works by imitation of what already exists and modifies it according to its personality, is assimilated to the way AI works.

“So (…) tell you that I believe that creativity comes from and is normal, that is, the learning system consists of imitating in order to learn: all animals do it this way, from a lion cub that imitates how the adults hunt and learns to hunt, to humans who tell us how to do it once and that’s how we learn to write, so all by imitation. So, really, creativity comes from imitating something and giving it certain changes so that it is also original”. S6

People, depending on their experiences, training, culture, etc., will produce changes and variations with respect to what already exists. In this sense, the content created by an artist will differ due to the artist’s background.

Interestingly, in the case of AI-generated content, the final product will also be differentiated according to the type of AI that has created it and, therefore, the person responsible for that AI. In other words, in both cases, the result obtained will depend on the human behind it. Therefore, the human factor is inherent to any content, the students argue.

“Human creativity is diverse, depending on the author and his or her context. However, AIs will become more diverse, and will take more contexts into account”. S7

In general, students and teachers have a positive view of AI as a useful tool to inspire the artist or even at times when there is a certain “creative block”. However, it is not advisable to overuse it, because it can “accommodate” us and that can make it more difficult to develop specific skills that are generated through experience.

“But you couldn’t overuse it either because creativity is trained. I mean, that’s how it is. So there comes a point when you have an identity crisis and you say: ‘Oh my God, I’m not an artist, no, I don’t know how to create anything without AI’. I mean, you also have to take that into account, right, it’s a tool, but you shouldn’t abuse it either”. S7

Frequent at various times and in both focus groups is the idea that AI results are conditional on what AI predicts can best meet the applicant’s requirements, and for this to be most successful, AI may tend to make conservative decisions based on the taste of the majority of the population. This idea is based on AI algorithms providing what is most successful, which will prioritise the most popular content or that which performs best commercially.

“No, no, AI is never going to renew anything or be original. So that’s where we get into the issue that, in many aspects of video games, series, films, people themselves are also taking what works and reproducing it because the aim of the industry is to sell”. S3

The content most likely to be generated by AI will be the content most likely to be replayed, and this in turn will feed the databases with images that will tend to be used in future interactions.

“Let’s say it is the most efficient route to a satisfactory outcome for the majority of users who interact with it”. E4

“AI has experiences, it has a style according to what it has learned and what people ask it to do, and it reinforces itself. So I think we have to simplify sometimes how AI works. The AI, every time it creates a new image that is given a new input, it learns and what it is learning is that this is what you are asking me to do”. E5
This may lead to a certain uniformity in the outputs provided by the AI. Both students and teachers point to the homogeneity of the four AI-produced images, for example, in terms of the hyper-realistic style of the images.

Teachers are aware that this may also be due to the way the instructions have been given to the AI, i.e., the “prompt”, and agree that AI-generated images in this case have a recognisable aesthetic. In addition, their interpretation is poorer as we cannot glimpse the intention or emotional baggage behind an image that has been made by a person.

“Why I have drawn a panda, maybe one person would have drawn the panda in hell because they are afraid of pandas and another wouldn’t, and that would have simply told you that person’s experience and on top of that if they hadn’t shaded it, apart from knowing that they are afraid of pandas, they would have known that they are bad at shading. And in AI you don’t have that feedback”. E4

3.4. Student Training

While the benefits of AI as a tool are undeniable, teachers and students agree that the training of arts students should start from a knowledge base of techniques and notions of drawing, illustration, etc. as a prior step to the use of AI in the context of art.

“I take it a bit to my field, that of translation. In other words, we teach you how to translate in your degree. In other words, first you have to learn to translate, with dictionaries, without a computer, you have to know how to find your own tools and do it. And once you know how to translate, now you can use programmes that will speed up the process, which may pre-translate something for you and you correct it because you already know how to translate. So I think it’s going to be a bit like that, isn’t it, like first learning how to design, how to draw and so on, and then including the tool”. S7

In order to obtain quality artistic results through AI, it is indispensable that the person who generates them has previous knowledge that allows him/her to understand and, if necessary, improve them: for example, composition, colour theory, etc.

“You get an image from the AI or you get a code programmed by the AI, it doesn’t mean you understand it. Neither how it works, nor do you understand principles of colour, visual language or programming principles, or even with principles of text writing if you are asking for text”. E5

It is indisputable that professionals must have a technical understanding of AI tools and keep abreast of AI developments if they are to be competitive.

“…the illustrators’ guild and the cartoonists’ guild to ride the wave, to do whatever it takes so that the coexistence between an illustrator and an AI can be compatible and profitable at the same time”. S6

All of the teachers refer to the lack of critical capacity of the students in their academic work. According to them, this manifests itself in the fact that in many cases they do not review the content of the work they hand in, which is particularly evident when the work has been generated by AI.

“I mean, look at this, obviously you’ve done it with AI because it shows and that’s it, I can’t, I can’t catch you, but it’s still wrong because of this, because of this, because of this, because of this, because of this, this would be better this way if you had done it human, rational, and so on, if we had done it this way, blah, blah, blah, blah, I think it’s there”. E2

Teachers point out that in their work as future educators, they can be of great value by acting as critical reviewers, together with students, of the outputs generated by AI.

“Yes, but what I am saying is that the role of the teacher is also to correct that, because the student sometimes does not have the capacity to know if what the AI has said is correct or not”. E3
What seems to be clear to educators is that, although AI will make the work much easier, it will be those students who take ownership of the learning process who will ultimately benefit most from AI.

3.5. Ethics and Deontology

The need for regulation of AI to determine authorship or ownership of certain content is reiterated by students. In addition, the fact that a distinction should be made between content generated by AI and content that has not used AI should be obliged to be distinguished.

“. . .I would say that yes, I completely agree, it has to be regulated, I have proposed before to make the same watermarks, indicating that an illustration has been, artificial intelligence has been used not only in its purpose, but part of the process”. S6

In this sense, the students point out, it is the consumer who must finally develop his or her critical capacity to differentiate between content that has been created by a professional illustrator and that which has been generated by AI, especially in relation to images.

“Well, the typical thing, not that he steals content from other artists and so on, but above all something that I was thinking about recently on the subject of the Internet, that I think we are going to have to relearn how to surf the Internet, for example. In the case of, I mean, we are already having a hard time, for example, with fake news, you still don’t know what is real news and what is fake news”. S3

The economic and social system in which we are immersed is going to prioritise immediacy over quality, and for this reason, the most committed consumer, educated in an artistic sensibility, is going to value and give more meaning to the most artistic content, even if it means a higher final cost.

“There is a change of mentality and either they start to really value the work of an artist or they will start to cut costs, they will start to steal designs like crazy; well, like what is happening with Shein, right? I mean, Shein steals a lot of designs from small companies”. S7

The belief that AI will not lead to competition with quality artistic manifestations is shared by both the group of students and the teacher group. Over time, the final audience will become increasingly sensitive and artistically educated, which will lead them to demand better products.

“Because I think that in time, even when the dazzle of artificial intelligence wears off, we as a society will also start to demand more from the end product. On the one hand, everyone will have to raise their standards and on the other hand, the public will become more educated”. E2

The professors point out that they do not believe that AI will create a divide and that as time goes on, the use of AI will become normalised across all sectors of society, just as it has in recent years with the rapid development of other technological advances such as the internet.

“It’s going to cost the first few years and then it will become naturalised just like the rest of the technology. No, I don’t think there will be a big gap”. E2

4. Discussion

When analysing the results obtained, we can conclude that for both the students and the educators who participated in this research, generative AI is a very useful tool for facilitating content generation in the field of art, both for the students and the teachers who participated in this research. The advantages of AI can be seen in the speed of content generation and in the help it can provide at specific moments: for example, to generate references when composing an image, or in moments of “creative block”.

However, the benefits of this technology are greater at the professional level than at the higher education level, in the opinion of teachers.
artists does not exempt students from learning elementary notions of composition, colour theory, narratives, etc., which will serve as a basis for later interpreting and reconstructing AI-generated content.

The market economy will embrace generative AI with great enthusiasm due to the lower costs of this tool. Consumers can choose easily and, for the time being, cheaply generated products with little technical knowledge. However, this universalisation of visual content through AI has its trade-offs. Both the student group and the educator group agree that AI homogenises the results of the final product, making the AI-generated image recognisable.

Outputs will be biased by the AI’s own content, i.e., the previous inputs that have “fed” the AI.

On the other hand, the images, texts or products proposed by the AI will be mediatised by the content that is most “popular”, i.e., that which is most consumed by the majority will most likely be presented by the AI. This will lead to a decrease in aesthetic diversity. These insights are consistent with research by Epstein et al. [31] showing that web image search results reinforce existing racial and gender inequalities and are not representative of all cultures.

The huge artistic output of AI will require the end consumer to have the technical and aesthetic sensitivity to distinguish the product from the art. In this sense, both students and teachers point out that AI will never replace quality artistic production, and the educated consumer will continue to be committed to artistic excellence. This is where the work of the arts educator has potential, as the teachers themselves have pointed out: Firstly, by providing knowledge and basic notions of illustration that help to understand the content generated by AI from a critical point of view. Secondly, by helping students to learn about and handle AI tools, which are an inherent part of the future of the arts. AI is unstoppable and from higher education, it is necessary to adapt and learn to use it in the best possible way. Indeed, research such as that by De Winter et al. [19] already shows opportunities to give educators more control over teaching, especially in terms of recognising the use of applications such as ChatGPT in texts and assessing student work.

The participating students are in their last stage of university studies and therefore have more experience and reflective capacity. Therefore, their arguments may be conditioned by their upcoming entry into the labour market and how AI may affect their professional future.

Some of the ideas expressed by the group of students interviewed about the use of generative AI in art coincide with those found in Mansoa’s recent research [4]. In this paper, a large proportion of students recognise AI as a useful tool for generating new ideas and optimising time, which was also noted by the group of students who participated in this work, who point to AI as a positive tool for removing creative blocks and saving time. Another argument shared by both groups of students is the risk of “confusing the reality and unreality of an image”. Both research papers also allude to the fact that AI cannot replace manual skill or real physical work, although they agree that it is the potential of this technology to enhance and expand art. It is worth noting that in both papers the students point to the need for AI regulation. It should be noted that our contribution offers the view not only of students, but also of educators in the field of audiovisual communication. According to AlDarayse [43], the attitudes of educators play a fundamental role in the use of this technology, so their opinion is of great value. The use of a focus group for data collection allows for interaction between the different participants and leads to a more relaxed reflection on the topic under discussion. Furthermore, the fact that our study uses images produced by IAs, students and professionals, generates a richer debate, as it differentiates between the production of novice and experienced artists.

One aspect that has been given weight in the group of students, and to a greater extent in the teacher group, is the importance of interacting with the AI efficiently, or in other words, perfecting the prompt to obtain the results that best suit our needs. This idea was already raised in the research of Sun et al. [29], where the students already note the
importance of the quality of prompts in terms of how well they are constructed in order to achieve the most appropriate results.

While human interaction with AIs is not always easy, it seems decisive that using concrete, detailed and technically specific instructions will help to achieve the desired results. As some professors point out, the evolution of AI at the moment does not allow the use of different communication channels when giving an instruction (for example, the verbal channel plus the visual channel), which can lead to a lack of understanding that does not occur in interactions between humans, where there are more expressive cues that favour empathy. Professors do point out that in the near future this may change with the development of more sophisticated generative AI applications. As Balcombe [8] points out, the human factors of human–computer interaction require more attention through empirical research. Although AI chatbots are increasingly accessible, they should be seen as complementary tools and not as human substitutes.

As generative AI is a very recent field, it is necessary to establish action protocols to avoid risks of misuse of personal data, manipulation of images and fraudulent use in education. It is significant that this aspect, that of regulation, already contemplated in some initiatives such as the Guide drawn up by UNESCO for the use of AI in Higher Education [30], has only been pointed out in our research, in the group of students. For example, one student pointed out that AI-generated images should be identified as such with, for example, watermarks. Perhaps a greater perceived danger of losing job opportunities makes this aspect more present than in the teachers’ group. The idea of ‘regulation’ in the use of AI is in line with that of Ivanova et al. [15] in their bibliometric research on Artificial Intelligence and teaching over the last 5 years. As these authors point out, AI in education is not only a technological breakthrough but also ‘a transformative force that requires continuous attention, collaboration and ethical consideration’ (p.18).

5. Conclusions

Overall, the conclusions of this study revolve around how generative AI should be applied strategically in arts education to take advantage of its great benefits, but also trying to prevent the ease of obtaining a result from being an impediment to learning about art and design theory. Theory and practice need to be learned at an early formative stage and experienced over years so that specialists can exist, and these specialists will always be needed for all the jobs that AI cannot generate. If the application of AI focuses more on achieving results than on reinforcing the learning of knowledge and the acquisition of skills, there could be a situation where there is a future shortage of specialists in different branches of art.

Among the limitations found in the study we found that the instructions given to the novice illustrators influenced the lower level of detail in their drawings, given that they had little time to produce them. On the other hand, the opinions and perspectives recorded from both focus groups are exploratory and a starting point, but further qualitative and quantitative studies are needed to deepen this new line of research.

Therefore, we consider that this study serves as a starting point for future lines of work such as conducting focus groups with professionals and clients to see if their perspective is different from that of students and educators, conducting a quantitative study among students and educators whose questionnaire is designed on the basis of ideas drawn from this analysis or improving the process of image generation as a stimulus for focus groups.


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