Research Article

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Delimiting the Future in the Relationship Between AI and Photographic Pedagogy

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Abstract: This article explores the integration of *synthography* in the context of a class in the Degree in Photography, as a strategy to explore artistic and professional practices in the digital transformation era, problematizing the pedagogical implications of using artificial intelligence (AI) in creative disciplines. The study revolves around the use of AI to generate visual content, specifically through the structured creation of prompts derived from photography knowledge and practices of the students. We analyzed the final AI-generated images, categorizing them as positive or negative results based on their aesthetic quality and compliance with the AI imaging guidelines taught in class. This assessment is complemented by analyzing the texts used by students in the prompts that generate these images, aiming to establish a relationship between the incidence of terms relevant to the construction of photography used in the prompts and the quality of the resulting image. Furthermore, the study investigates cases where deviations from the taught strategies occurred, examining the nature of these deviations and their impact on the final product. The analysis raises hypotheses substantiating how the deviation can lead to positive or negative results. Starting from the idea that *synthography*, as a pedagogical tool, can promote a deeper understanding of the interaction between technology and creativity, it seems urgent to propose to students' critical engagement with the several dimensions of AI, both in academic and artistic production. Finally, the study proposes to explore a set of pedagogical questions that can reflect on the potential educational use of AI in creative disciplines, thus contributing to the broader discourse on ethical education in AI.

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1 Introduction

In recent years, the spread of artificial intelligence (AI) has revolutionized several creative and artistic fields, including photography. Since the emergence of tools like DALL-E, Midjourney, and Stable Diffusion in 2021, the ability to quickly and effectively generate image sets using textual descriptions has become a reality. These technologies democratize access to new creative tools and raise significant questions about their impact on higher education (Bates, Cobo, Mariño, & Wheeler, 2020), aesthetic appeal (Göring, Ramachandra Rao, Merten, & Raake, 2023), ethics (Hagendorff, 2024), and authorship (Amer, 2023). This article explores the pedagogical implications of using AI in creative higher education subjects, focusing on an exercise in generating photorealistic images with AI, carried out in the Expanded Photography curricular unit of the final year of the Degree in Photography at our institution (School of Media Arts and Design). Through practical exercise, students were encouraged to use AI tools to generate images, allowing a direct exploration of the capabilities and limitations of these technologies. The results obtained from the exercise were analyzed by observing the textual requests produced and the resulting images, categorizing these images based on aesthetic quality and adherence to AI image prompting guidelines provided by teachers. The study's objective is to bring into discussion the need for critical involvement in developing pedagogical methodologies for using these new tools in an academic context, as well as understanding what possible pedagogical strategies can be implemented in teaching photography. The article also proposes a set of questions that reflects on possible pedagogical strategies to optimize AI's educational potential in artistic disciplines. The main intention is to contribute to a broader discourse on AI education by promoting a comprehensive understanding of the dynamic interplay between AI technology and creativity. This involves promoting the knowledge and critical thinking skills needed to address the challenges

and opportunities presented by AI-based tools and methodologies among students and teachers through practical exploration of these technologies, in the specific case of this study based on the knowledge of visual discourse and photography techniques, previously taught during the Degree in Photography.

2 AI and the Generation of Photographic Images

The potential of using AI to create images has brought paradigmatic changes comparable to the impact of the invention of photography (Agüera y Arcas, 2017; Hertzmann, 2018). Computational technology for digital imaging using AI, mainly using generative adversarial networks (Shamsolmoali et al., 2021), has led to further developments that have enabled significant evolution at the intersection of AI and digital imaging with the emergence of tools such as DALL-E, Midjourney, and Stable Diffusion (Manera, 2023). These tools have democratized the use of AI in digital image creation (Manovich & Arielli, 2023). Recently, *synthography* has emerged as a proposal for the definition of computational techniques that allow the generation of photographic images through textual requests structured in "prompts," namely using "text-to-image" techniques (Reinhuber, 2022). Manera (2023) argued that the case of *synthography* requires semantic linguistic skills in the "prompting" phase and figurative skills in the image definition phase, unlike computer-based art, which requires programming skills. Technical references such as camera, film, lens, lighting, and framing types are regularly used in image generation prompts. From this, we can understand that a photography student has the advantage of having an appropriate lexicon that matches how AI generates photographic images from textual "tags." Furthermore, we can recognize the importance of using *synthography* to enhance the development of technical terminology for image analysis and construction by generating photographic content through structured instructions derived from photographic knowledge and practices. Integrating AI into photographic pedagogy requires a combination of traditional teaching and exploration methods with new digital tools, which promotes a deeper understanding of the use of AI in future artistic and professional contexts. AI algorithms can analyze vast amounts of data and provide models to generate images that would be complex, or even unfeasible, to be created by human photographers. This technology can optimize photographers' time and resources and open new creative possibilities for visual exploration. However, it is essential to recognize that the possibility of generating images through AI should not be a substitute for human creativity but rather serve as a tool for it.

Some recent evidence of images generated and edited by AI shows how the use of this tool is entering professional and artistic practice, reaching galleries and museums, and even distinguishing photographs with awards. One of the first works to generate discussion about the role of AI in creative competitions of an artistic nature was Jason Allen's "Théatre D'Opéra Spatial" (Barale, 2023), which won first place in the Digital Arts/Digital Manipulated Photography category in the Colorado State Fair's annual art competition in 2022. According to the author, the image was created using Midjourney and later manipulated with Adobe Photoshop. Although Allen mentioned the use of Midjourney, some of the jurors were unaware that this tool used AI, and despite retaining the award, he was later denied eligibility for copyright protection. Even earlier, in 2019, Mario Klingmann exhibited "Memories of Passersby I" (Barale, 2023), which uses a system of neural networks to generate portraits infinitely. This artistic installation, whose main form of expression is the image of portraits generated by AI, was one of the first works created with AI to be auctioned in Europe by the prestigious Sotheby's. One of the most notable examples is undoubtedly the work "Pseudomnesia: The Electrician" by Eldagsen (n.d.a) which won first place in the "Creative Open" category of the "Sony World Photography Award" in 2023. The German artist, generated the image using text-to-image AI techniques, including prompting, inpainting, and outpainting. Eldagsen later revealed that this image generated with AI was part of a larger body of work, including his series *Pseudomnesia III* (Eldagsen, n.d.b), which features images created through image prompting (image-to-image techniques). This work generated a significant debate about the role of AI in traditional photography competitions and the transformative power of this tool in photography, questioning the limits of photographic art. Eldagsen himself has advocated for the term "promptography" to describe works produced using such techniques, adding to the evolving discourse on the classification of AI-generated imagery.

3 Synthography Applied in the Class Course Context

The exercise was proposed in the Expanded Photography discipline in the first semester of the third year of the Degree in Photography, knowing that these students would

already have a theoretical and practical background capable of applying their knowledge of photography in the context of writing prompts aimed at the generation of images close to a photographic result. Before proposing the *synthography* #8.1 classroom exercise, explanatory content was presented about its concept, possibilities, characteristics, applications, and methods. Some examples produced by the teacher of the class demonstrated the main differences from traditional photography, such as automated creation, variability, and guidance via textual data. After the theoretical approach, it was demonstrated how to use the various AI image generation tools' main parameters for image generation, such as introducing the text "prompt," model selection, number of generation steps, guide scale, and "seed." Some structuring methods were clarified for writing "prompts," following *OpenArt's* (Stable Diffusion Prompt Book, n.d.) and Dall.E's (Dall·e 2 prompt book, 2022) website guidelines on "prompting"; according to the guides, structuring the "prompt" directly affects the image results obtained. Subsequently, the following structure should guide writing the "prompt" sequentially: (1) Point of view (type of framing); (2) Medium (would have to include a term related to photography); (3) Subject (a reference to subjects, places, or objects); (4) Lighting; (5) Type of lens; and (6) Type of photographic device. To carry out the exercise, in addition to the suggested guide, other terms relevant to the image were allowed if they did not jeopardize the achievement of a photographic visual result. Some established rules for producing images for the exercise were: (1) Participants choose the theme of the image; (2) The resulting image should have a photographic aesthetic, unlike other possible aesthetics (such as illustration, painting, collage, 3D); (3) The photographic lexicon must be used (framing, lighting, type of lens, among others); (4) It is not allowed to evoke specific artists or artistic styles; (5) Only a total of five images could be produced; Of the five images generated, only two images should be chosen for submission of the class exercise, based on those that would best represent what the students consider a good result. The application used for the classroom exercise was an online AI image generator (Nightcafé, n.d.), which allows the use of several AI image generation models. It works online through a browser and generates around five images daily with no monetary cost. Of the 27 students in the class, 19 provided 29 images, some submitting only two images and others only one. Among the images submitted, only nine students provided the text prompt for the images generated. Given the limited number of prompts available to the teacher after the class exercise, we took the initiative to conduct a focused pedagogical study. This research aimed to analyze how the images and prompts were generated and to understand the extent to which the process influenced the *synthography* results.

4 Image Analysis

4.1 Visual Analysis of Generated Images

For technical and visual analysis, the images produced with AI by the students were first selected by two authors of this research, who also teach classes in the Degree in Photography and who did not have access to the text "prompts" used for image generation. From the set of images provided by the students (Appendix I EN), these teachers selected two groups of images, one considered as "positive" and another as "negative" that could or could not coincide with each other, depending on their aesthetic and technical evaluation. Specifically, each teacher chose four images from the same set produced by the students, considering two of the images as a positive result, and the other two as a negative result, and then arguing an aesthetic and technical evaluation on the images chosen.

4.1.1 Evaluation from Teacher 1

The four images above have some characteristics that suggest AI generated them – anatomical imperfections/inaccuracies in the human figure stand out (proportions of the head, hands, eyes, among others). This observation aligns with the teacher's experience as a photographer, which provides deeper insight into pinpointing some of these visual inconsistencies. The uncanny valley effect further supports this (Kätsyri, Förger, Mäkäräinen, & Takala, 2015), as the subtle inaccuracies in the analyzed images of "close-to-human" vs perceptual expectations often elicit a sense of strangeness or disconnection when observing the images. Considering this issue, the photograph featuring two buckets appears more natural, although the way they rest on the ground continues to appear too artificial. This image manages – with some success – to approach a documentary aesthetic. After a more careful analysis of the four photographic images generated by the AI based on "prompts" to which there was no access voluntarily, it was possible to analyze the photographic images without information on the indicative proposal for the AI to generate them; it was possible to understand, in general, that all photographic images generated by AI present technical or assembly/AI-generated imperfections.

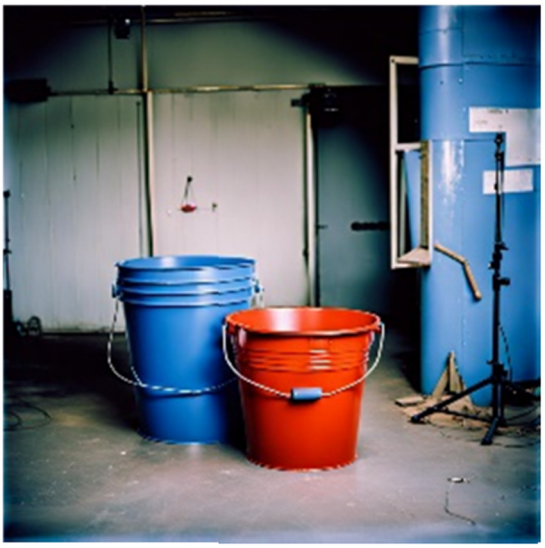

Figure 1: IF6.

Having carried out a more extensive analysis of the images, we can see that these errors are related to perspective and scale, among others, in a more technical context. When we analyze their theme, two images catch our attention, particularly the image in Figure 1, generated by a student's text, and the image in Figure 2, generated by another student's text. In the photographic image in Figure 1, we see a pair of buckets, one in a bright blue and the other in a bright red, whose color is balanced by another blue object. It is a very ordinary image with a balanced composition in terms of the distribution of colors, the volumes of the objects, the light that illuminates the space, and the texture of the floor and wall. An image easily identified as a documentary image of an industrial warehouse that was computer generated. In the second case, the photographic image in Figure 2 aims to promote the Lidl Supermarket but simultaneously includes strong social and cultural criticism. It attracts the viewer by the colors, by the unusual fact that it uses a public individuality of American "Pop" Music – Michael Jackson, and by deliberate and carefully staged colors that evoke the world of advertising; in other words, it seduces us with impact. On the other hand, the imperfection of the image's details, namely, the excess or lack of fingers and the fact that he is holding a bunch of bananas, leads us to a more discriminatory implicit interpretation.

The other two images, Figures 3 and 4, by two other students, seem very vulgar images without much interest because they represent the "cliché" without much surprise and are easily observed in many books, photography magazines, or movie theaters. In the third case of Figure 3, the image is in black and white, with a usual focus and blur technique in this type of photography, to direct the observer to the female model photographed and to the clothes and accessories she wears, in this case, the jewelry (earrings), the hat, the blouse, the neckline. We see a beautiful woman, a perfect female model, with elegant features and a face without imperfections that is difficult to believe is natural. In the fourth case, that of Figure 4, the image is in color. Also, it uses the blurring of what is behind and in front of the two twin girls, passing the viewer's attention to the center of the image, that is, to the portrait of these two characters, using the diagonal lines that delude us into a

Figure 2: IM7.

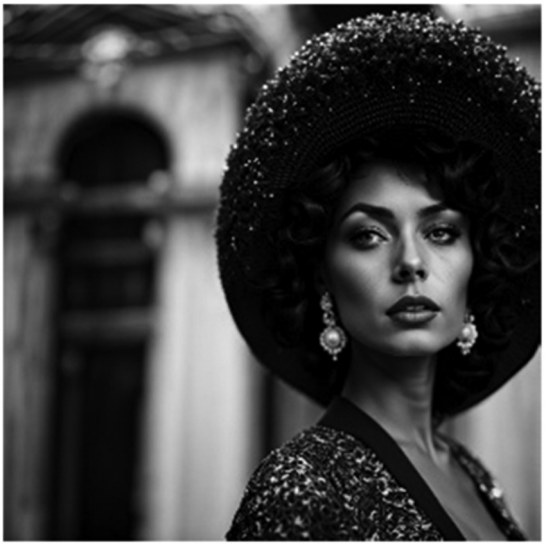

Figure 3: IF4.

Figure 4: IM9.

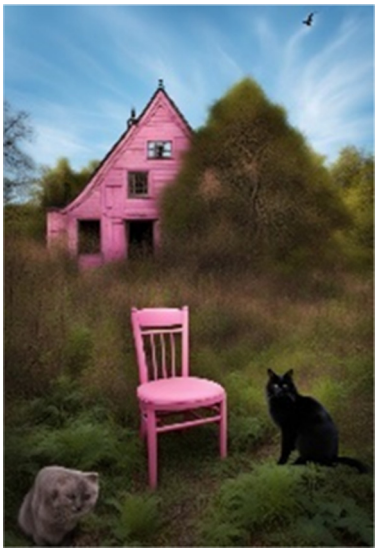

Figure 5: IF2.

kind of sensation of movement, escape, suspense that reinforces the distressed and surprised look of those portrayed. It is a "cliché" without surprises and with some technical imperfections and, once again, in the fingers and imperfections on the face of one of the twins. Based on Stanley Kubrick's film, it is a tribute to Diana Arbus, a photographer who did extensive work on twins in the 80s, whose photographic quality is unparalleled. Both images demonstrate that the text induced the AI to use specific artist names (photographers or filmmakers).

4.1.2 Evaluation from Teacher 2

Four images were selected from the available set, which, in general, despite presenting different themes and plastic qualities, denote a typical artificiality. In a global analysis, all images present some characteristics of being generated by AI (Kamali, Nakamura, Chatzimparmpas, Hullman, & Groh, 2024), focusing on the lack of natural textures on the subjects' skin in the portraits and the disfigurement of some elements in the scene. The individual analysis of images is carried out only based on their visual component, without previously seeing which text was used in the "prompt" that generated it. In terms of individual analysis, Figure 5 displays an image with a surreal style, where we can see a composition with a brightly colored pink house in a natural setting that aspires to be realistic and where there is a pink chair and a pair of cats. The atmosphere is reminiscent of works by artists such as René Magritte, and the expressive use of colors suggests an evocation of the Fauvist movement. The image does not look like a photograph, at least in a conventional sense. The blurring and contrast of the lines are more like a painting, and the chair suggests an image produced by 3D editing software; in addition to presenting the previously described characteristics, the cats and the house present deformations in shape and perspective. The image focuses on both the foreground (the chair and cats) and the middle (the pink house), suggesting a deep depth of field where various elements attempt to remain in focus. The image's perspective is relatively low, and the lighting tries to be natural and diffuse, avoiding shadows and strong contrasts. Although there are potential references to photography techniques, the resulting image is closer to a painting in terms of color, blurring between elements, composition, and framing.

The second image, shown in Figure 6, is already close to the result of a conventional photograph. The use of black and white, combined with the model's "vintage" costumes and accessories, suggest influences that date back to the glamorous photography of Hollywood's golden era. It seems to evoke the work of Cindy Sherman from her series "Untitled Film Stills," where we have the image of a glamorous female against the background of urban architecture. The details of the clothing and props are intricate and believable, and the depth of field is well achieved, showing the woman's face and hat in sharp focus while the background and part of the shoulder are blurred. The composition also presents a possible use of a lens typical for portrait photography, presenting the plane of focus without significant distortion. The lighting configuration,

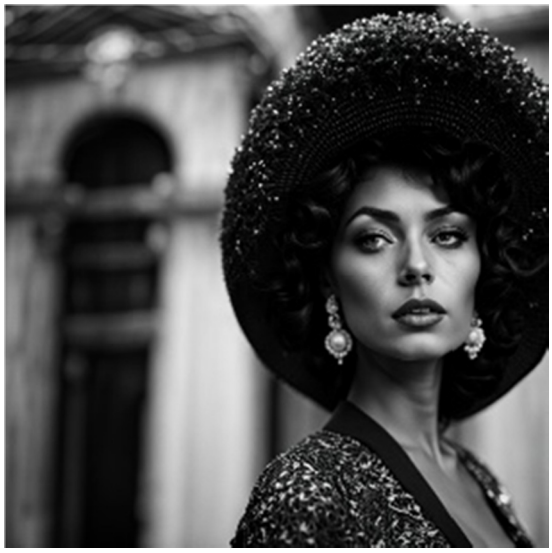

Figure 6: IF4.

soft and diffuse, also credibly presents a contrast close to conventional photography. The image is compelling but has some shortcomings, most notably in the woman's eyes.

The third image, shown in Figure 7, is a conventional portrait with a more casual tone. It is also a compelling image that shares some of the formal and technical characteristics of the previous image, such as the use of depth of field and lighting and a female model in the foreground, in this case, against a natural background. In this image, it is worth noting the vibrant use of color, possible in conventional photography using specific film types or post-processing, dating back to the 70s/80s. The color palette, hairstyle, clothing, and glasses evoke a "retro" aura in an intimate and informal pose that could resemble a photo in a family album. Overall, the image is credibly close to a result of conventional photography, despite having deficiencies in the eyes and the strange patterning of the hair that looks like a digital copy-and-paste edition.

Finally, the image presented in Figure 8 contains more evident features generally associated with defects in AI-generated images. The image presents a humorous portrait that mixes "pop" culture elements in an everyday context. There is a precise evocation of a well-known figure in American pop music, Michael Jackson, dressed as a supermarket worker. The image appears to use technical resources like the previous two in composition, depth of field, light, and lens use, which is typical of a photographic portrait. The colors are highly saturated, giving an almost plastic nature to the elements in the scene, which further reinforces the attempt at a "pop" aesthetic close to the graphic image of commercial product packaging. The most relevant thing about this image is the degree of deformation seen on the costume label, especially on the extra fingers of the hands and the objects they manipulate, which seem to merge partly.

4.2 Analysis of the Texts Used to Generate the Images

The strategies for writing the text for a "prompt" always consider a correct, complete, and structured AI response

Figure 7: IF5.

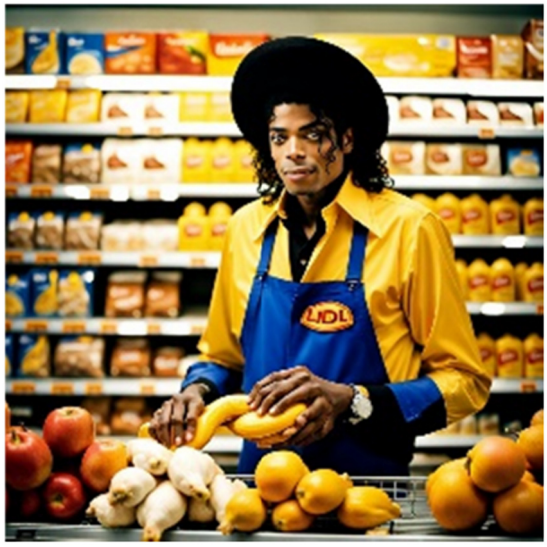

Figure 8: IM7.

based on the intended objectives. The user does not consider their linguistic value and lexical use when AI responses are verbal. However, programs allow the text received to be changed and valued only from an informative (quantity and quality) and adapted (computer-based or personal point of view) to the user's intentions and choices. In the case of photography, we must question how the wording of the "prompt" text can interfere with the intentions underlying the production of images, as well as their quality, originality, aesthetic, and ethical value. In the same way, we must ask questions about how the AI user accepts and changes the response to the "prompt." Regarding the use of AI in teaching practices, we must question whether AI pedagogically develops cognitive skills that allow the students to have an aesthetic, technical, and critical judgment of the AI responses.

It was possible to analyze nine "prompts," written by students who participated in this pedagogical proposal. Of the nine, six characterize the type of photograph, and four characterize (with color, attitude, characteristics, and props) the items to be included – nine "prompts" use technical characterizations of photography. Among the nine "prompts" analyzed, three included characterizing the type of photography or, as a type of photography, the photographer's name (Diane Airbus, Richard Avedon, Cindy Sherman). One of them, in addition to the name of the photographer (Diane Arbus), includes the name of the portrait (twins) and a scenography context of a sequence in a Kubrick film, "The Shinning," to request a hybrid photographic production. By contrasting the data referred to in the analysis of the photographs and those in the texts of the "prompts," it is possible to see how much the photograph highlights (in a way considered correct or incorrect) some requested items.

In this situation, after the analysis of the prompts written by the students, some questions may arise in this research. They will be helpful in designing the methodological attitude in future identical pedagogical practices:

- Does referencing a photographer's name in a prompt to generate a specific type of photograph constitute plagiarism?
- Does generating a photograph based on a prompt that specify a type of photograph along with a photographer's name constitute an intervention in that photographer's style?
- What should be added to the photographer's name so that the photograph includes the originality of the person using the AI?
- When the "prompt" includes the intersection of "film photography" and "portrait photography" identifying the photographer, film, and cinematographic sequence (namely, the space), is the photograph always original? Or, in this case, will we have hybrid plagiarism because it was requested and not built?
- Moreover, how does anyone who writes a "prompt" position themselves about the relevant details?

Among the nine prompts, six do not include references to colors to include in the image. Should we conclude that this is not relevant because all products provided by AI can be digitally manipulated? Moreover, the products obtained are just the beginning of the manipulation process, eliminating only AI in photographic production, the process of gestural and scenography construction, and the process of mechanical capture (digital or analog). In IM7, the text of the "prompt" integrates the subject "duck," and yellow (not mentioned in the "prompt") is a constant in the image. Can we conclude that AI operates synecdochically on the text of the "prompt," transforming the presence of objects into the presence of one of its characteristics, creating (as an act of correction?) hypothetically something exciting and unsolicited?

- Can we conclude that although the student's request was not fulfilled, the acceptance of the AI alternative demonstrates the influence of AI on the student's thinking?

In the nine "prompts," none of the adjectives refer to ethical, sociological, or political judgments. The amount of text varies between 7 and 34 lexical items. The image with the most lexical items used in the "prompt" (IF3), with only two technical items, was not selected. This "prompt" characterizes the photographed topics with seven lexical items, with only one other (IF5) that uses more lexical items (nine) in this field. The "prompt" (IF1) with the most lexical items used in the technical characterization (eight) was not selected.

- Should we conclude that whoever selected valued the images more with the technical choices made by the AI program?

The "prompts" with the most significant lexical items quantity (in the characterization of the photograph, in the characterization of the photographed topics) correspond to female students (IF1, IF3). The "prompts" with the most excellent lexical items quantity (22, 34, 29 items – in the total text) correspond to two female students and one male student (IF1, IF3, IM9). The "prompts" with the lowest lexical items quantity (7 items – in the total text) correspond to a male student (IM8) whose image was not selected. No "prompt" analyzed includes interrogative sentences. Therefore, AI has no questions or doubts about how to

resolve these issues. Among the nine analyzed, a single "prompt" includes an imperative clause (IF4: "make."), leaving us uncertain whether it is an order, a request, an instruction, or a suggestion. There is no "prompt" with imperative sentences with prohibitions, nor any "prompt" with declarative negative sentences. It is thus evident that the student never included in the text what he did not want, did not give instructions regarding objectives to be achieved (only technical instructions capable of defining the product), and did not define intentions/objectives for using photography. Most of the "prompts" (eight) have declarative sentences, all in the affirmative, with only information about the subject. Inside five "prompts," the subject is the photographic object; in three "prompts," it is the type of photography, topicalized first.

Is the topicalization of the prompt text relevant to the product provided? There is no text in the "prompts" with sentences where the characterization of the taste, emotions, objectives, and intentions of the subject who wrote the text of the "prompt" appears as a reflection on the photograph. The subject who writes the "prompt" is as if elided from the requested production, having only the power to inform/request technical or emotional definitions to be contained in the photograph.

Should we conclude that when AI is used in academic training for photographic production, the focus of the "prompt" is always photography because of particularities, technical data, and contexts and never the photographer's reflection/objectives? Should we conclude that the student (AI user) who uses AI reflects and formulates the text to request the product that his previous reflection induced? Or is technological evolution developing an appreciation for technical characteristics in cognitive skills?

5 Conclusion

This study investigates the integration of *synthography* into higher education pedagogy, specifically within a class of students on the Degree in Photography at ESMAD-School of Media Arts and Design. The research examines how students apply their theoretical and practical photographic knowledge to craft prompts for AI image generation and how these prompts influence the resulting images' aesthetic and technical quality. *Synthography* is presented as an open pedagogical challenge, emphasizing that its advantages cannot be fully understood from a purely technical perspective. The study examines the relationship between text and image in AI-generated photography, underscoring how prompts act as both instructions and creative interventions. The findings suggest that AI in photographic pedagogy shifts the focus from traditional creative processes to a hybrid space where textual intent and technical execution intersect. The doubts that emerge analyzing students' prompts and images point to several possible pedagogical approaches for future exercises of this nature. Such AI *synthography* practices may, beyond their technical aspects, necessitate discussions around ethics, authorship, and the broader implications of creative agency in AI-generated art.

The relationship between image and text has never been peaceful. Much discussed in terms of photography/caption, that is, in the simultaneous presence of the two instances, it gave rise to two concepts: the rhetoric of resistance (Mitchell, 1994), where the text close to the image would have an implied factoriality and would be capable of interfering in reading the image and the rhetoric of attraction (Baptista, 2009), given that, even when read simultaneously, the verbal and pictorial instances are infinitely supported by the implicit aspects of both, allowing us to see what the image does not show, but which the text leaves/makes it visible. Now, when photography departs from the text, this entire practice ceases to be rhetorical, as an art of persuasion, and the text from which the image originates ceases to interfere with the perception of the image. The text, so profoundly linked to photography, becomes a "request," physically removing the photographer from the production and perception of what appears photographed and removing the reader from the image of its origin. This digital practice demands to be read as a production where the "text-to-image" process will leave the text invisible to the reader of the image but partially responsible in a phase in which the hybrid text/image relationship has more than the final phase of annexation of the two instances and an offer of them to those who read, thus raising a series of doubts about photographic production.

- How can we know how AI responds to (subjective) artistic/communicative reflections and intentions beyond how it responds to objective data?
- With AI, can the user use critical skills on the image without having productive skills?
- Is the ability to request without knowing/being able to do it and criticizing what is obtained to gather other answers a form of power without and with knowledge structuring the opinion?
- Should the student be asked why they accept an image that does not respond precisely to the "prompt"?
- With AI's emergence in the academic sphere, where does the boundary between practical knowledge, theoretical knowledge, and theoretical/practical knowledge emerge?
- Does the evaluation of the images obtained respond to parameters independent of the type of writing in the

prompt? What are the students' intentions? How current is the image? What type of photography is used? What is the theme? How can polytechnic education decenter "knowing how" in the student's cognitive development of a structuring competence?

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References

Agüera y Arcas, B. (2017). Art in the age of machine intelligence. *Arts*, *6*(4), 18. doi: 10.3390/arts6040018.

Amer, S. (2023). *AI imagery and the overton window*. arXiv preprint arXiv:2306.00080. doi: 10.48550/arXiv.2306.00080.

Baptista, A. (2009). *Interações texto/Imagem no caso particular da legenda de fotografia*. Lisboa: FCT.

Barale, A. (2023). Portraits of non-existent people: AI art and (human) imagination. *Aesthetica Preprint*, (120), 7–21. doi: 10.7413/0393-8522103.

Bates, T., Cobo, C., Mariño, O., & Wheeler, S. (2020). Can artificial intelligence transform higher education? *International Journal of Educational Technology in Higher Education*, *17*, 42. doi: 10.1186/s41239-020-00218-x.

Dall·e 2 prompt book, Guy Parsons·July 13, 2022·1 min read, & also, S. (2022). *The DALL·E2 prompt book*. DALL·Ery GALL·Ery. Retrieved December 13, 2024, from https://dallery.gallery/the-dalle-2-prompt-book/.

Eldagsen, B. (n.d.a). *Pseudomnesia*. boris eldagsen. Retrieved December 13, 2024, from https://www.eldagsen.com/pseudomnesia/.

Eldagsen, B. (n.d.b). *Pseudomnesia III*. boris eldagsen. Retrieved December 13, 2024, from https://www.eldagsen.com/pseudomnesia3/.

Göring, S., Ramachandra Rao, R. R., Merten, R., & Raake, A. (2023). Analysis of appeal for realistic AI-generated photos. *IEEE Access*, *11*, 38999–39012. doi: 10.1109/access.2023.3267968.

Hagendorff, T. (2024). Mapping the ethics of Generative AI: A comprehensive scoping review. *Minds and Machines*, *34*, 39. doi: 10.1007/s11023-024-09694-w.

Hertzmann, A. (2018). Can computers create art? *Arts*, *7*(2), 18. doi: 10.3390/arts7020018.

Kamali, N., Nakamura, K., Chatzimparmpas, A., Hullman, J., & Groh, M. (2024). How to distinguish AI-generated images from authentic photographs. *arXiv [Cs.HC]*. http://arxiv.org/abs/2406.08651.

Kätsyri, J., Förger, K., Mäkäräinen, M., & Takala, T. (2015). A review of empirical evidence on different uncanny valley hypotheses: Support for perceptual mismatch as one road to the valley of eeriness. *Frontiers in Psychology*, *6*, 390. doi: 10.3389/fpsyg.2015.00390.

Manera, L. (2023). From photography to synthography. Aesthetic remarks on synthetized images. *Studi Di Estetica*, (27), 205–220. doi: 10.7413/1825864653.

Manovich, L., & Arielli, E. (2023). Chapter 5. In *Artificial Aesthetics: Generative AI, Art, and visual media*. essay. https://gc-cuny.academia.edu/LevManovich.

Mitchell, W. J. T. (1994). *Picture theory: Essays on verbal and visual representation*. Chicago: University of Chicago Press.

Nightcafe creator. (n.d.). Retrieved December 13, 2024, from https://creator.nightcafe.studio/.

Reinhuber, E. (2022). Synthography – an invitation to reconsider the rapidly changing toolkit of digital image creation as a new genre beyond photography. In M. Wölfel, J. Bernhardt, & S. Thiel (Eds.), *ArtsIT, Interactivity and Game Creation: Creative Heritage. New Perspectives from Media Arts and Artificial Intelligence* 10th EAI International Conference, ArtsIT 2021, Virtual Event, December 2–3, 2021, Proceedings. Lecture Notes of the Institute for Computer Sciences, Social-Informatics and Telecommunications Engineering (pp. 321–331); Vol. *422*. Cham: Springer. doi: 10.1007/978-3-030-95531-1_22.

Shamsolmoali, P., Zareapoor, M., Granger, E., Zhou, H., Wang, R., Celebi, M. E., & Yang, J. (2021). Image synthesis with adversarial networks: A comprehensive survey and case studies. *Information Fusion*, *72*, 126–146. doi: 10.1016/j.inffus.2021.02.014.

Stable diffusion prompt book. OpenArt. (n.d.). Retrieved December 13, 2024, from https://openart.ai/promptbook.

APPENDIX : Delimiting the Future in the Relationship Between AI and Photographic Pedagogy

Analysis of the texts used to generate the images

Image	Prompt	Lexicon quantity	Context Spatial/ temporal	Topic identification photographed	Type of photography	Adjectivation of the type of photography	Technical lexicon	Characterization of photographed topics	Action definition	OBS:
IF1 	Close-up portrait, color portrait, professional portrait photography by Cindy Sherman, bokeh, studio lighting, canon lens, shot on dslr, 64 megapixels, sharp focus	22	1- Spatial studio		2 (portrait; photography by Cindy Sherman)	2 (professional, photography by Cindy Sherman)	8 (color, close-up, bokeh, studio lighting canon lens,shot on dslr, 64 megapixels, sharp focus)			The context includes a backdrop of a curtain with luminous colored balls
IF2 	Photograph of a florest with pink chair and a witch sitting on it with a black cat	17	1- Spatial (Florest)	4 (forest, chair, witch, cat)				2 - Colors (pink chair, black cat)	1 (siting)	The photograph does not include the witch or the forest (error in forest that could have been taken by a florist?) and 2 cats appear

IF3 	Photograph of a woman with a short red and purple dress, inside a wooden box, in a flowy yet weird pose, with a frontal point of view, dramatic lighting, with a lot of contrast	34	2 – Spatial (wooden box)	2 (women)		3 (frontal point of view, dramatic lighting, lot of contrast)	2 (frontal, lighting, contrast)	2- Colors (red and purple dress), 2 – Atittude (flowy yet weird pose), 3- Props (dress)	1 (inside box)
IF4 	**Make** a black and white film photography. Portrait Photography. Inspired by Richard Avedon. 8k 50mm	15			3 film photography, portrait photography inspired by Richard Avedon)	2 (black and white, portrait photography inspired by Richard Avedon)	3 (black and white, 8k, 50 mm)		
IF5 	Princess diana, hippie, long hair, red glasses, forest background, f/16, kodak portra	12	1- Spatial (Forest background)	1 (Princess Diana)			2 (f/16; kodak portra)	1 Attitude (hippie), 2 - Characteristics (long hair), 3 – Props (red glasses), 3- Colors (red)	
IF6 	Blue bucket in the middle of movie studio, kodak portra style, f/8, beautiful conceptual	14	1- Spatial (middle of movie studio)	1 (blue bucket)	1 (conceptual)	1 (beautiful)	1 (kodak portra style)	1 cores (blue)	

IM7 	Michael Jackson working on lidl, duck in the background, kodak porta, food aisle, f/16, beautiful conceptual	16	3 – Spatial (Lidl, food aisle, duck in the background)	1 (Michael Jackson)	1 (conceptual	1 (beautiful)	1 (f/16; kodak portra)	1 (working on Lidl)	No ducks appear, but the yellow tone is constant, Extra fingers on each hand
IM8 	Man playing theremin in 1920, wetplate photography	7	1- Temporal (1920)	1 (man)			1 (wetplate photography)	1 (playing theremin)	
IM9 	Two Twins girls inspired by the twins sisters by Diane Arbus photography. Long background corredor like the one in The Shining movie. Film photography. Natural creepy light. 50 mm F16	29	1 Spatial (long background corredor like the one in The Shining movie)	1- two twin girls	2 (film photography, The Shining, twins sisters by Diane Arbus photography)	3 (creepy; twins sisters by Diane Arbus photography, Long corredor in The Shining moovie)	1 (50mm, f/16, natural creepy light)		