VISUAL REVIEW | Vol. 17, No. 8, 2025 | ISSN 2695-9631
International Visual Culture Review / Revista Internacional de Cultura Visual

https://doi.org/10.62161/revvisual.v17.6136

ARCHITECTURE AND VISUAL CULTURE IN THE AGE OF AI
The Role of Generative Design

CARLOS MARIO PÉREZ NANCLARES[1]
c.perez.nanclares@alumnos.upm.es

FEDERICO LUIS DEL BLANCO GARCÍA[2]
federicodelblanco@hotmail.com
[1] PhD student, Polytechnic University of Madrid, Spain
[2] Lecturer, Polytechnic University of Madrid, Spain

KEYWORDS

Computational design
Generative design
Visual culture
Digital architecture
Social networks
Artificial intelligence

ABSTRACT

This research explores the way in which platforms such as social media, along with generative design and artificial intelligence linked to computational design, have revolutionised the manner in which visual culture is produced, distributed, and consumed in the architectural field. This encompasses both architecture education and its practical application, giving rise to new ways of visual expression and the formation of new identities, both individual and collective.

Received: 03/ 08 /2025
Accepted: 10/ 11 /2025

1. Introduction. Purpose of the Research

The digital and technological revolution of recent decades has fundamentally transformed the production, distribution and consumption of visual culture, especially in creative fields such as architecture. The research focuses on understanding how social media, together with advances in technologies such as generative design and artificial intelligence linked to computational design, have led to significant changes in architecture, both in its educational dimension and in its practical application. It studies how the combination of these technological elements has enabled the emergence of new forms of visual expression and the formation of innovative identities, both individually and collectively.

The purpose of this research is to analyse the relationships between digital technology and contemporary architectural visual culture. This includes investigating how new social media tools and platforms have popularised access to visual content production, allowing a wider audience to participate in the creation and dissemination of architectural ideas. It also seeks to understand how, hand in hand with the above, artificial intelligence and generative design linked to the practice and execution of computational design have enriched aesthetics and architectural trends, leading to the emergence of new visual and conceptual forms in the field of architecture.

One of the objectives is to explore the influence of social media as mediators in the way visual culture in architecture is produced, distributed and consumed. Not only have they transformed the dynamics of interaction between professionals in the field and their audience (Morales, 2015), but they also serve as a platform for the exhibition and critique of architectural works, providing access to a vast amount of visual and textual data that is essential for feeding and training artificial intelligence algorithms. These algorithms, in turn, are fundamental to the development of generative design systems, improving their ability to produce creative and accurate variations in architectural projects.

On the other hand, interest in social networks as educational tools arises from the observation that these networks are mainly used as means of communication and socialisation for recreational or informational purposes, but that they also have significant potential to support academic processes, due to their ability to facilitate collaboration, information exchange, real-time feedback and access to a vast network of knowledge and resources by users. We will therefore examine how computational design and associated technologies have impacted architectural education, as the emergence of new forms and structures necessarily brings about changes in traditional teaching methods. (Oxman, 2017) incorporating a more experimental and technologically advanced approach into academic curricula that prepares students for the demands of the modern labour market and stimulates innovation and creativity in the design process.

Research is also being conducted into how the immediacy of feedback obtained through social media influences the way architects and designers perceive and adapt their creations. This direct interaction with the audience allows for the rapid identification of trends and preferences, offering a better understanding of the specific cultural and social contexts that affect architecture. Therefore, this ongoing dialogue between creators and consumers of architectural visual culture plays a crucial role in defining and evolving aesthetics and identities in this field of knowledge.

By focusing the study on the field of architectural education and how visual culture affects teaching and learning processes, courses that use artificial intelligence and generative design techniques associated with computational design offer a relevant context in which to examine this situation. Such is the case with the courses Project Representation 6 and Parametric Design and Digital Fabrication 1, offered to students at the Faculty of Architecture and Design at the National University of Colombia, Medellín Campus. In this academic space, projects based on generative design are developed experimentally, allowing for visual results that are less rational, or less traditional, if you will.

The study examines how the results of the work in these subjects, which are based on generative design, vary substantially in terms of their formal aspects when compared to the results of subjects in the Project Workshop area, which do not address computational design, transcending traditional forms closer to those used by the modern project towards a more complex formal universe, enriched and affected by the possibility, firstly, of access to visual information offered to students by social networks, and secondly, of the use of generative design tools, whose algorithms can be fed, in addition to other sources, by the information provided by those social networks by the students who execute them.

Finally, the research aims to contribute to the academic and professional debate on the future of architecture in the digital age. By analysing how emerging technologies are reshaping architectural practices and visual culture, it explores perspectives on how architects and designers can leverage these tools to innovate and respond to contemporary challenges effectively. In short, the aim is not only to understand current transformations but also to anticipate the future directions of architecture in the context of an increasingly digitalised and visually connected world.

2. Background

The digital and technological revolution that has taken place in recent decades represents a paradigm shift in the way we interact with the world, particularly in the realm of visual culture. This phenomenon has had a profound impact on various creative disciplines, and perhaps none as deeply as architecture. This research focuses on analysing how innovations in social media (not only in terms of their complex operation, but also in terms of what they offer in terms of image), generative design and artificial intelligence, the latter two closely linked to computational design, have marked a turning point in architectural practices, both in education and in their practical application. These technologies have facilitated the emergence of new forms of visual expression and have been catalysts in the formation of both individual and collective identities.

Today, it seems that the ability of these platforms to provide access to an immense amount of visual and textual data is important for feeding and training artificial intelligence algorithms, which, in turn, are fundamental to the development of generative design systems. This could be one of the reasons why these systems have significantly improved the ability to produce creative and accurate variations, thus transforming the architectural design process.

The relevance of this research lies in its effort to reveal the complex dynamics of the relationship between digital technology and visual culture in contemporary architecture.

Historically, the production of architectural visual content was limited to a small group of individuals with access to specific resources, knowledge, and tools, such as physical magazines (Escala, Proa, d'Arc, etc.), books on the specific work of fashionable architects, documentaries, study trips, etc. Today, all of this content and much more, including not only information filtered by publications, but also everyday, routine architectural production in any geographical and cultural sphere, is freely available through social media.

The democratisation of this information through freely accessible social media platforms has allowed a much wider audience to actively participate in the creation and dissemination of ideas (Ávila-Toscano 2012), in this case architectural ideas. This phenomenon affects virtually all aspects of daily life, including academia, generating the possibility of integration with artificial intelligence and generative design, computational design practices that have affected and transformed architectural aesthetics, giving rise to the emergence of new visual and conceptual forms (Gerber and Pantazis, 2016).

This has also been encouraging a transformation of traditional teaching methods, with the debate being integrated into the processes of curricular renewal and updating in architecture schools, in the search for more experimental and technologically advanced teaching and learning processes. This situation aims to prepare students for the demands of the present and future labour market, as well as to foster a culture of innovation and creativity in line with our time and our civilisation in the field of architectural design, as expressed by Mies van der Rohe (Puente, 2006).

Social networks today are so varied that they can be classified according to different criteria, such as their main purpose, thematic focus, demographic audience, business model or type of content. The latter is established as the most relevant for this study, as it classifies social networks into three types: those that emphasise "microblogging", i.e. the publication of short messages; those that prioritise multimedia content, whereby they mainly share images and videos; and mixed-content social networks, which allow for a variety of content (Ávila-Toscano, 2012).

As visual culture in architecture is the main topic of study, social networks that emphasise multimedia content and those with mixed use are of interest to this study. Social networks such as Facebook, Pinterest, Instagram, and TikTok fall into these two categories and have the highest usage rates among architecture students.

It is therefore clear that the academic sphere, i.e. the teaching-learning processes, is the focus of this research. However, it is necessary to refer to the professional practice sphere as a background,

understanding that the immediate feedback obtained through social media impacts the perception and adaptation of architectural creations by their creators, allowing for rapid identification of trends and preferences of the public and an understanding of the cultural and social contexts that shape architecture. The research argues that this ongoing dialogue between creators and consumers of architectural visual culture is vital for the evolution of aesthetics and identities within the practice of the discipline, but fundamentally in the training processes.

Finally, in seeking through this research not only to understand the current transformations driven by the digital revolution in architecture, but also to anticipate the future directions of this discipline in an increasingly digitalised context, it is important to consider as a fundamental antecedent that, by deepening our understanding of how emerging technologies are reshaping architectural practices and visual culture, valuable perspectives have been opened up on how architects and designers today use these tools to innovate and effectively address contemporary challenges, but also to prepare for the demands of the future.

3. Hypothesis

The hypothesis of this research posits that the use of certain social media platforms, with an emphasis on multimedia content, provides architecture students with access to a vast amount of visual and textual data, which is essential for feeding and training artificial intelligence algorithms. These algorithms, in turn, are fundamental to the development of generative design systems, which improve the ability to produce creative variations in design projects. This has changed the way visual culture is produced, distributed, and consumed in the field of architectural education, giving rise to new forms of visual expression and the formation of new identities, both individual and collective.

4. Objectives and justification

The intersection between digital technology and contemporary visual culture presents fertile ground for research, given the rapid pace of change and the depth of its influence on architectural practice and teaching and learning processes.

The democratisation of the production and dissemination of visual content through social media has altered who can contribute to architectural discourse and how these contributions are shared. This openness has led to a shift towards a more inclusive and collaborative community in architectural creation, due in part to its integration with artificial intelligence and generative design in what is known as computational design. This has not only allowed for the creation of previously unimaginable forms and spaces but also raises questions about the role of the human designer in a process that is increasingly mediated by algorithms. Exploring how this relationship between social media and computational design can affect or improve the process and how designers maintain control over design decisions is crucial to defining the future of the profession.

In this sense, the influence of social media on the production, distribution, and consumption of visual culture in architecture deserves particular attention. Social media platforms not only act as channels for architectural dissemination and criticism but also function as a vast repository of data that can feed design algorithms. These algorithms are conceived and ordered by architects; they do not automatically migrate to computational design tools. It is therefore pertinent to inquire into the role of the designer in a process that, until a few years ago, was carried out entirely in an analogue manner. We must ask ourselves: how does the designer maintain control over the project today?

The work focuses on the following objectives:

To analyse the relationship between digital technology and the evolution of visual culture in contemporary architecture. This objective focuses on understanding how digital tools and social media platforms have transformed the way architecture is created, shared and perceived, and how these technologies have democratised the production of visual content in the field.

To examine the impact of generative design and artificial intelligence on the development of new architectural aesthetics and trends. This objective seeks to investigate how the integration of these advanced technologies into the computational design process has contributed to the emergence of innovative visual and conceptual forms in architecture.

To evaluate the influence of social media on the production, distribution, and reception of architectural works. This objective aims to study the role of social media as platforms for the exhibition,

criticism, and dissemination of architecture, as well as its effect on the interaction between professionals and the general audience, in addition to providing images, trends, and current concepts.

Investigate the impact of digital technologies on architectural education. Here, the focus is on how computational design tools, generative design, and artificial intelligence are redefining teaching and learning methods in architecture, promoting a more experimental and innovation-oriented approach.

Explore how immediate feedback through social media affects the perception and adaptation of architectural creations. This objective seeks to understand how real-time interaction with the audience influences design decisions and the identification of trends and preferences among the public.

5. Design and method

5.1 Formal object

This research focuses on the study of the intersection between digital technologies and visual culture in architecture, investigating how the digital and technological revolution, particularly through social media, generative design and artificial intelligence applied to computational design, has transformed the production, distribution and consumption of visual culture in the field of architecture. It aims to analyse these changes from several perspectives: the influence on architectural practice and education, the emergence of new forms of visual expression, and the formation of innovative architectural identities at the individual and collective levels.

In particular, the pedagogical perspective is approached from the experience of students in design subjects that apply algorithmic processes fed by social media, with those that emphasise multimedia content being the subject of analysis.

5.2 Type of research

By focusing on the study of the use of so-called digital technologies, on the one hand social media platforms and on the other computational design tools, and how this relationship affects visual culture in teaching and learning processes in the field of architecture, we are fundamentally analysing the relationship between two variables, which are expanded and classified below. For an analysis of this type, we examine whether there is a relationship between these variables, without manipulating them directly. Therefore, this work falls within the field of correlational research.

The use of social media platforms such as Facebook, Instagram, TikTok, and Pinterest is analysed, as well as how they provide access to a vast amount of visual and textual data, which is essential for feeding and training artificial intelligence algorithms by architecture students who use generative design systems. This approach is aligned with mixed research, i.e., data is analysed both qualitatively and quantitatively. Through this methodology, we seek to understand how the integration of computational design and the aforementioned social networks influences educational processes in specialised fields of design. The type of research can therefore be defined as mixed correlational.

5.3 Scope of study

The proposed research focuses on exploring and analysing the experience of students enrolled in the courses "Project Representation 6" and "Parametric Design and Digital Fabrication 1," both offered in the Architecture programme at the National University of Colombia, Medellín Campus. These subjects are part of the compulsory disciplinary component of the programme's curriculum, specifically within the area of Project Representation and Communication Media, which complements other fundamental areas such as Theory and History, Project Technology and Urban Planning. It should be noted that the area of Project Workshops is considered the essential core of the curriculum.

Located at the midpoint of the academic programme, between the third and fourth years of study, the aforementioned subjects adopt a methodology based on generative design. This approach involves the creation of algorithms which, in addition to other sources, are fed by visual information obtained by students through various experiences, including the use of popular social networks such as Facebook, Instagram, TikTok and Pinterest.

In this field of study, the present research aims to deepen the understanding of how students' interaction with these social media platforms influences their learning process and the practical application of generative design concepts in the architectural context.

5.4 Analysis variables

This research required the establishment of variables whose analysis would allow us to understand how the phenomenon studied affects the educational process and learning outcomes in the selected field of study. Not all the variables proposed were taken into consideration due to the time constraints of this research. Those considered suitable for analysis in this study were grouped into categories and proposed in direct relation to the qualitative correlational methodological approach given to this research. These categories reflect the research objectives and help to organise the data analysis effectively.

5.5 Variables related to digital technologies and social media platforms:

Use of Social Media: This variable examines which social media platforms (Facebook, Instagram, TikTok, Pinterest) are used by architecture students and how they influence their access to visual and textual data that can be used in the configuration of algorithms programmed for generative design processes in the work developed in the aforementioned subjects.

Access to Visual and Textual Content: This analyses the quantity and quality of visual and textual information that students have access to through social media and how this information feeds into their creative process. To this end, it analyses the trend of accounts that are followed and the topics they cover, whether they are related to architecture or other areas of knowledge related to design that can contribute to the understanding, use and creation of visual culture.

Integration of Design Technologies: It evaluates how generative design and artificial intelligence are integrated into computational design to improve creativity and precision in architectural projects, and to what extent and in what quantity the data used as input to feed the design processes comes from social media.

5.6 Variables related to visual culture and architecture:

Innovation in Visual and Conceptual Forms: It refers to the emergence of new visual and conceptual forms in architecture as a result of the integration of digital technologies, which are disseminated through social media, among other media.

Changes in the Production of Architectural Visual Content: This raises questions about how digital technologies have democratised the production of visual content and its impact on architectural practice, among other issues, thanks to the use of social media.

5.7 Variables related to architectural education:

Teaching and Learning Methods: this analyses how the introduction of digital tools has transformed teaching and learning methods in architecture, promoting more experimental approaches. Although traditional approaches still persist in workshop development, the experience analysed is considered relevant due to its impact on the training of architects today.

Feedback through social media: it studies the impact of interaction with the audience on the perception and adaptation of architectural creations by students, criticism, self-criticism and validation of trends, including the level of acceptance of their proposals through 'likes', comments and 'reposts'.

5.8 Variables related to the interaction between creators and audience:

Influence of Feedback: this examines how feedback obtained through social media affects design decisions and the identification of audience trends and preferences.

Dialogue between Creators and Consumers: through the analysis of this variable, we explore how the continuous interaction between creators and consumers of architectural visual culture defines and evolves aesthetics and identities in this field.

5.9 Research techniques

Given that the objective is to investigate the relationship between variables without seeking to establish a causal relationship, this study is classified within the field of mixed correlational research, analysing both qualitative and quantitative data. To achieve the proposed objectives, tasks were carried out in accordance with the research techniques most suited to the scope of the study:

Informal interviews and spontaneous discussions were held with focus groups made up of students enrolled in these subjects, with the aim of collecting data on their experiences, perceptions and practices related to the use of social networks and their integration into the architectural design process.

Direct observation was carried out of the development of the subjects and the behaviour of the students whose practice was identified as closest to the phenomenon under study, in order to understand how the relationship between digital design tools and the use of social media platforms has transformed the way visual culture is created, shared and perceived, how these technologies have democratised the production of visual content in the field of architecture, and how the integration of these advanced technologies into the computational design process has contributed to the emergence of innovative visual and conceptual forms.

Through the observation and analysis of the results obtained by students in the development of their projects (models, plans and digital models), it was also possible to establish how computational design tools, generative design and artificial intelligence are redefining teaching and learning methods in architecture, promoting a more experimental and innovation-oriented approach.

6. Fieldwork and data analysis

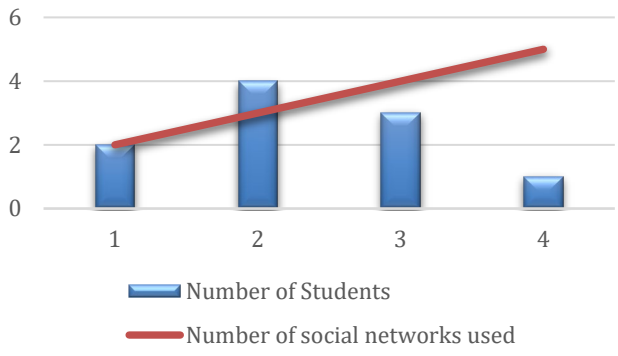
The investigation is part of a broader study initiated in 2021 as part of the development of a doctoral thesis. Some of the data necessary for the discussion of this study was collected during the second semester of 2023, between August and November. Making use of their status as professors attached to the teaching staff of the aforementioned faculty of architecture, the researchers participated in the development of the first stage in the academic period corresponding to semester 01 of 2024, carried out between February and March.

During the second semester of 2023, the data initially collected for the specific analysis within the framework of the doctoral thesis did not appear to be intended for use in this study. However, detailed observation of the use of social media and its significant impact on the work of project workshop subjects highlighted a crucial aspect: the contributions of images and information obtained from these platforms to the creation of algorithms used in generative design processes. This circumstance led to a reconsideration of the possibility of exploring this phenomenon in greater depth, suggesting that it could become an independent research topic due to its relevance.

The work carried out in the first two months of 2024 redefined the scope of observation and the focus of the research to concentrate specifically on the subjects "Project Representation 6" and "Parametric Design and Digital Fabrication 1". This decision was made given the particular nature of their work based on generative design, which facilitated the validation of the relationship between the variables studied and the initial hypothesis.

Informal discussions were held with students to explore and establish indices and characteristics related to social media use (Graphs 1 and 2), as well as its possible influence on design decisions. This approach allowed for a more precise definition and focus of the study group. Based on these preliminary interactions, detailed observations were made, complemented by basic statistical analyses. The objective of this methodology was both to quantify and qualify the students' use of social media and to evaluate its potential impact on the development of architectural projects.

Graph 1. Index of social media use by the focus group



Source: Author's own elaboration, 2024

The data collected allowed us to characterise the focus group's use of social media. For this analysis, two working groups were defined, one for each subject, with 6 and 4 members each, for a total of 10 students. The following information was gathered on their activity on social media, partly through interviews, but also by analysing, with permission and in the presence of the students, so as not to affect their privacy, the statistics provided by the pages themselves. The data obtained was graphed for use in the analysis, and the following information was obtained:

Quantitative:

How many students in total make up the focus group for analysis.
How many of them use social media.
How many social networks they use.
How many of them influence their education.
What percentage of each social network is used.

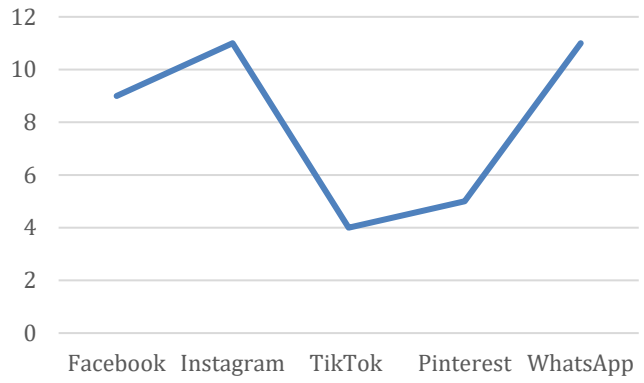
Qualitative:

Which social networks do they use?
What types of accounts, in terms of thematic emphasis, are detected in your profiles.
Which social networks provide information and data for their academic projects.

Through direct observation of the results of the course, supplemented by informal discussions, it was possible to verify how the visual and textual information obtained from social media contributes to the development of algorithms used for generative design. To this end, an observation was made of the resulting models, both virtual and physical.

To complement direct observation, we opted to conduct spontaneous, unstructured interviews and hold direct conversations with participants. This approach sought to deepen our understanding of the topic by capturing more personal and detailed information. The interviews became a valuable tool for gathering personal testimonies and impressions, which significantly enriched the analysis, discussion, and processing of the data obtained.

Graph 2. Use of social media by type



Source; Author's own elaboration, 2024

7. Discussion of results

Although the curriculum of the Architecture programme at the National University of Colombia, Medellín Campus, is structured around the Project Workshop area as its central axis, other areas such as Project Representation and Communication Media, Theory and History, Project Technology and Urban Planning complement the training of architects. This curriculum structure, established more than five decades ago, is based on the teaching and learning guidelines proposed by the modern movement during the second half of the 20th century.

The modern project approach is initially based on the adoption of analogous methods for both reflection and project execution. This approach is not limited solely to the representation and communication aspects of the project, but comprehensively covers all activities carried out within the workshop classroom.

In recent years, workshops have undergone an evolution, adapting both to the changing demands of professional practice and to the influence of the digital culture of new generations of students, who bring with them an intrinsic relationship with digital media and computational processes and have naturally integrated these tools into various aspects of their daily lives, including education. This phenomenon

has driven the incorporation of these technologies into workshop teaching practice, reflecting a significant change in teaching and learning methods.

These transformations have not been formally integrated into the programme's curriculum structure; instead, they have emerged organically through students and their natural affinity with computer technology. It is the subjects belonging to the complementary training areas that have begun to incorporate topics such as computational design into their official content. This approach has facilitated the integration of everyday computer tools into the teaching repertoire, thus enriching the process of teaching and learning architecture in the context studied.

It was observed that generative design, used for project development in a spontaneous and experimental manner in the subjects "Project Representation 6" and "Parametric Design and Digital Fabrication 1," is initially developed through the analysis of data from multiple sources. The analysis encompasses case studies, site analysis, user preferences, and specific regulatory requirements for the function and unique characteristics of each project, traditionally used in the project workshop setting, but also significantly leverages the potential of social media platforms such as Facebook, TikTok, Instagram, and Pinterest. These platforms, frequently used by students, become valuable sources of information, especially with regard to visual culture in architecture.

The process begins with the collection and analysis of data that will influence the design. Students explore relevant case studies, examine the physical and cultural characteristics of the site, consider the needs and preferences of future users, and ensure that their designs comply with applicable regulations. At the same time, they research social media to study current trends, visual inspirations, and aesthetic preferences prevalent in contemporary architectural visual culture. This digital exploration broadens their understanding of design possibilities and enriches their creative process with innovative ideas.

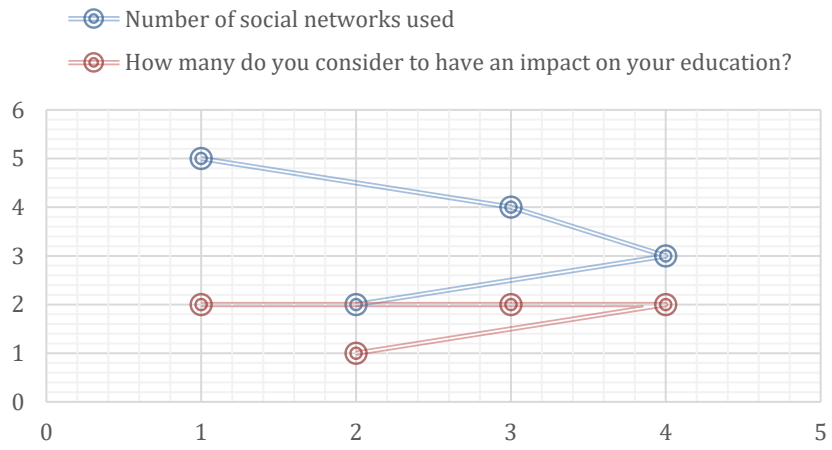
Using parametric design tools, students can integrate this diversity of data into generative models that respond dynamically to established criteria. This allows for the exploration of a wide range of design solutions, optimising aspects such as form, function, sustainability, and integration with the environment. Generative design, therefore, not only facilitates the creation of aesthetically appealing and functionally appropriate architectural proposals, but also promotes a design methodology that is reflective, informed, and deeply connected to the current socio-cultural context.

The course "Parametric Design and Digital Fabrication 1" takes this process one step further, introducing students to digital fabrication techniques. This allows them to materialise their generative designs through physical prototypes, using technologies such as 3D printing, laser cutting and CNC milling. Practical experience with these technologies prepares students for the challenges of design and construction in the 21st century, ensuring that their skills remain relevant in an ever-evolving professional environment. The above observation is relevant because, as these forms are produced through generative design and artificial intelligence, their prototyping and representation in three-dimensional models or mock-ups becomes more complex in the absence of the tools provided by the digital fabrication laboratory of the Faculty of Architecture.

This is a relevant observation in relation to the variables of analysis that have to do with visual culture and architecture. Generative design in these subjects represents a fusion between the meticulous analysis of traditional data and the creative integration of modern and contemporary cultural and visual influences obtained from social networks. This not only enriches the design process but also prepares students to enter the professional field with an up-to-date perspective, in line with the civilisation to which they belong, as well as advanced skills in digital design and manufacturing, typical of the academic and professional practices of architecture in our time.

As explained in the section on fieldwork and data analysis, a group was selected on which to focus the observations and analyses. This was because, although all students are users of the social media platforms studied, not all of them use the information obtained from these platforms to configure the algorithms used in the execution of generative design. In fact, the group of students who met the characteristics described in the analysis variables and who were ultimately involved in the observations during the study is relatively small compared to the total number of students in both subjects. However, it is crucial to understand that the number of participants is not a determining factor in this context. The main objective is not to establish the observed phenomenon as a generalised trend, but rather to identify it as a valuable opportunity to enhance and advance the use of social media, thereby benefiting teaching and learning processes in the field of architecture. (Graph 3).

Graph 3. Incidence index of data obtained from social media in generative design processes.



Source: Author's own elaboration, 2024

In the study of variables related to digital technologies and social media platforms, it was determined that Facebook and Instagram are the most widely used networks for collecting relevant data. This is because both platforms specialise in sharing contextualised visual content, i.e. images that reflect specific characteristics of a place or culture. In addition, they offer profiles and posts that follow thematic sequences related to architecture, including theoretical and historical trends and the use of materials, among other aspects. This approach is crucial to the main objective of this research, which focuses on visual culture in architecture. On the other hand, although TikTok provides a large amount of multimedia content, it tends to publish material that is less contextualised from a cultural or geographical point of view, focusing instead on the characteristic practices of different age groups or recreational or leisure activities. As for Pinterest, although it highlights images related to specific topics, including architecture, it does not delve into the aforementioned topics in the same way as Facebook and Instagram.

8. Conclusions

This research on the interaction between digital technologies and visual culture in architecture, focusing on the impact of social media and tools such as generative design and artificial intelligence, reveals significant transformations in both architectural education and practice. It highlights how these technologies, and in particular the use of social media, have democratised the production and distribution of visual content, allowing for broader and more diverse participation in architectural discourse and an evolution in the definition and practice of what is considered visual culture.

One of the key findings is the relevance of Facebook and Instagram as sources of visual data for students, due to their contextualised content that reflects specific characteristics of places or cultures, and their ability to follow thematic sequences related to architecture. This contrasts with other platforms such as TikTok, which tend to offer 100% multimedia content, but much less specific culturally or geographically, and Pinterest, which, although it includes architecture among its themes, does not manage to detect a relationship between it and a social or cultural context as explicitly as the first two.

The implementation of generative design in the subjects "Project Representation 6" and "Parametric Design and Digital Fabrication 1" has allowed for the exploration of new forms of visual expression and the incorporation of digital manufacturing technologies, such as 3D printing, into the educational process, at least in the context studied. This approach has enriched the students' learning experience, preparing them to face contemporary challenges in architecture and highlighting the importance of a more experimental and technologically advanced approach to education, paving the way for eliminating prejudices about the practices of current generations in relation to the use of new technologies in educational environments.

Although the group of students directly involved in the use of social networks for the configuration of generative design algorithms is small, the study demonstrates the potential of these platforms to enrich teaching and learning processes. This suggests a valuable opportunity to advance the integration

of these tools in the field of architectural education, underlining the need for deeper reflection on how to adapt curricula and teaching methods to the demands of an increasingly digitalised era.

Finally, this study contributes to the debate on the future of architecture in the digital age, offering perspectives on how to leverage emerging technologies to innovate and respond effectively to contemporary challenges. It highlights the importance of understanding current transformations and anticipating future directions in architecture in a visually connected world, marking a step towards training future architects who are innovative, creative, and technologically competent.

9. Acknowledgements

This research is part of a broader study initiated in 2021 as part of the development of a doctoral thesis entitled, "Computational design in the training of architects: Influence of computational design in university education between 2008 and 2020," which aims to analyse how computational design has influenced the training of architects at leading universities in Europe and North America since 2008 and, from there, to encourage universities in Latin America to carry out their own developments and show how, when combined with the ingenuity and creativity of architects, it can contribute to solving problems that arise during the development of a project in different socio-cultural contexts.

Referencias

Ávila-Toscano, J. H. (2012) *Redes sociales y análisis de redes. Aplicaciones en el contexto comunitario y virtual*. Corporación Universitaria Reformada,

Claudia Flores-Saviaga, J. H. (2019). Audience and Streamer Participation at Scale on Twitch. *30th ACM Conference on Hypertext and Social Media*. New York: Association for Computing Machinery. (pp. 277–278) https://doi.org/10.1145/3342220.3344926

Colin Ford, D. G. (2017). Chat Speed OP PogChamp: Practices of Coherence in Massive Twitch Chat. *CHI Conference Extended Abstracts on Human Factors in Computing Systems* (pp. 858–871). New York: Association for Computing Machinery. https://doi.org/10.1145/3027063.3052765

del Blanco García, F.L., García Ríos, I., González Uriel, A. (2020). Process Design for Automation. In: Agustín-Hernández, L., Vallespín Muniesa, A., Fernández-Morales, A. (eds) *Graphical Heritage. Springer Series in Design and Innovation, vol 6*. Springer, Cham. https://doi.org/10.1007/978-3-030-47983-1_35

del Blanco García, F. L. (2022). Reconstructing Pérez Piñero' s Anoeta Velodrome. Nexus Network Journal 24, 913-934. https://doi.org/10.1007/s00004-022-00590-3

del Blanco García, F. L. (2021). Virtual reconstruction and geometric analysis of Félix Candela's inverted umbrellas for The Villahermosa Cathedral. *Disegnarecon,* 14(27), 1–14. https://doi.org/10.20365/disegnarecon.27.2021.10

Dux, J. (2018). Social Live-Streaming : Twitch.TV and Uses and Gratification Theory Social Network Analysis. *8th International Conference on Computer Science, Engineering and Applications*, *8.* https://doi.org/10.5121/csit.2018.80305

García, R. C. (2021). El lenguaje de los videojuegosanglicismo y creatividad léxica en la plataforma Twitch. En R. P. Salud Adelaida Flores Borjabad, *Nuevos retos y perspectivas de la investigación en Literatura, Lingüística y Traducción* (pp. 1062-1082).

García Ríos, P. y del Blanco García, F. L. (2023). New Babylon. Análisis y reconstrucción virtual de la visión utópica de Constant Nieuwenhuys, *EGA Expresión Gráfica Arquitectónica,* 28(47), pp. 256–271. https://doi.org/10.4995/ega.2023.16173

Gerber, D.J., Pantazis, E., (2016). A multi-agent system for façade design: a design methodology for design exploration, analysis and simulated robotic fabrication. In: *Proceedings of the 36th Annual Conference of the Association for Computer Aided Design in Architecture*, pp. 12-23.

Jabi, W., (2013). *Parametric Design for Architecture*. Laurence King Publishing Ltd.

Jabi, W., Soe, S., Theobald, P., Aish, R., Lannon, S., (2017). *Enhancing parametric design through non-manifold topology*. Des. Stud. 1-19.

Luque-Sala, A., del Blanco García, F.L. (2023). A Virtual Reconstruction of Gaudi's Skyscraper Hotel Attraction Using Physics-Based Simulation. *Nexus Network Journal, 25*(3), 795-816. https://doi.org/10.1007/s00004-023-00655-x

Morales, G. (2015*). Aspectos educativos de las redes sociales: un análisis de los factores que determinan su puesta en práctica.* (Tesis doctoral). Universidad de Sevilla.

Moreno Latorre, A.; del Blanco García, F. L. (2021). Graphic communication in Architecture Competitions. Data visualization as an analysis tool in EGA. *EGA Expresión Gráfica Arquitectónica,* 26(41), 190–205. https://doi.org/10.4995/ega.2021.14054

Oxman, R., (2006). *Theory and design in the first digital age.* Des. Stud. 27, 229-265.

Oxman, R., (2008). *Digital architecture as a challenge for design pedagogy: theory, knowledge, models and medium*. Des. Stud. 29, 99-120.

Oxman, R., (2012). Novel concepts in digital design. In: Gu, N. Wang, X. (Eds.), *Computational Design Methods and Technologies: Applications in CAD, CAM and CAE Education.* Information Science reference, pp. 18-33.

Puente, M. (2006). *Conversaciones con Mies van der Rohe*. GG.

Rocker, I.M., (2006). *When code matters*. Architect. Des 76 (4), 16e25.

Simon, H.A., 1969. *The Sciences of the Artificial.* MIT Press.

Vygotsky, L. (2012). *El desarrollo de los procesos psicológicos superiores* (S. Furió, Trad.). Austral. (Original work published).