Theory as a conceptual foundation in graphic design. Exploration of the relationship between two university subjects.

La teoría como fundamento conceptual en el diseño gráfico. Exploración de la relación entre dos asignaturas universitarias.

Mónica Solórzano Zavala
Corresponding author and first author
Conceptualization – data curation
formal analysis – research
methodology – visualization
review and editing – writing
monica.solorzano@anahuac.mx
Universidad Anáhuac México
Ciudad de México, México
ORCID: 0000-0002-5547-4970

Carolina Magaña Fajardo
Data curation – research – supervision
review and editing – writing
carolina.maganaf@anahuac.mx
Universidad Anáhuac México,
Universidad Nacional Autónoma
de México
Ciudad de México, México
ORCID: 0000-0003-0245-8528

◈ **Abstract**

Semiotic research and analysis are essential in the decision-making process of undergraduate graphic designers at the Anahuac University Mexico. This study analyses the relationship between two theoretical subjects: Elementos de semiótica para el diseño and Seminario de investigación en diseño gráfico I and II (Semiotic Elements for design and Seminar in Design Research in Graphic Design I and II). The aim is to explore how these subjects enable students to apply theoretical bases and conceptual tools in interpreting visual signs and cultural, local, and global values.

The approach is qualitative-descriptive, focusing on the final research projects of the 2023 Graphic Design Research Seminar II. These papers highlight the application of perceptual knowledge and methodologies to address social responsibility issues, especially in challenges related to diverse motor and visual abilities.

The study demonstrates the importance of integrating theory and practice to train versatile designers aware of their social environment. The conclusions underscore the importance of enhancing theoretical education to meet contemporary challenges in graphic design.

Keywords: fundamental theory, graphic design, exploration, analysis and research.

◈ *Resumen*

La investigación y el análisis semiótico son esenciales en la toma de decisiones de los diseñadores gráficos universitarios en la Universidad Anáhuac México. Este estudio analiza la relación entre dos asignaturas teóricas: Elementos de semiótica para el diseño y Seminario de investigación en diseño gráfico I y II. El objetivo es explorar cómo estas asignaturas capacitan a los estudiantes para aplicar bases teóricas y herramientas conceptuales en la interpretación de signos visuales y valores culturales, locales y globales.

El enfoque es cualitativo-descriptivo, centrándose en los trabajos finales del Seminario de investigación en diseño gráfico II del 2023. Estos trabajos destacan la aplicación de conocimientos sobre percepción y metodologías para abordar problemáticas de responsabilidad social, especialmente en desafíos relacionados con la capacidad motriz y visual diversa.

El estudio demuestra la importancia de integrar teoría y práctica para formar diseñadores versátiles y conscientes de su entorno social. Las conclusiones subrayan la necesidad de fortalecer la educación teórica para enfrentar los retos contemporáneos en el diseño gráfico.

Palabras clave: teoría fundamental, diseño gráfico, exploración, análisis e investigación.

◈ Introduction

The evolution of graphic design in the academic sphere has undergone a significant transformation, emphasizing the importance of a solid theoretical base that complements creative practice. In this framework, the Anahuac University Mexico stands out for integrating into its curricula subjects that foster a deep understanding of theoretical principles, such as Elements of Semiotics for Design, Seminar in Design Research in Graphic Design I, and Seminar in Design Research in Graphic Design II. These subjects play a crucial role in the formative development of students, providing them with the conceptual tools necessary to approach design projects with a perspective directed toward social responsibility.

Through a detailed analysis of the thematic content and pedagogical objectives of selected subjects, this text demonstrates how theoretical education forms the foundation for graphic design practice. The selection of these subjects reflects their theoretical nature and their strategic position within the educational itinerary: the first inaugurates the educational process with an immersion in key theories for the conceptualization of projects, while the second and third culminate in an exhaustive investigation oriented towards the implementation of design solutions, considering the ethical, environmental and social impact, making decisions that promote the wellbeing of society as a whole.

For the development of this qualitative research, a documentary research method was used. Also, a descriptive method was used to present the process of study and research in the subjects Seminar of research in Graphic Design I and II and its link with the theoretical foundation initiated in the subject Elements of Semiotics for Design. Moreover, a comparative analysis has been conducted, allowing for the selection of research posters created in the Seminar subjects. These research posters materialize the research and the results achieved in addressing issues of social responsibility.

The research question guiding this study is: How does the integration of semiotics and research methods in the subjects Elementos de Semiótica and Seminario de Investigación.

impact the ability of undergraduate graphic designers at the Universidad Anáhuac México to develop design proposals that are culturally relevant, socially responsible and meaningful in the context of contemporary graphic design?

To address this question, we will initially establish the context of the curricula that incorporate these theoretical subjects and encourage analytical and critical thinking, focusing on how they contribute to the integral formation of the student. The importance of university social responsibility and its relationship with the design education process will be examined, highlighting the relevance of the subject Research Seminar in Graphic Design I and II as the culmination of a cycle that prepares future professionals to face the contemporary challenges of graphic design with a critical and committed vision. Finally, the results obtained are presented, emphasizing the exemplary projects, and focusing on the challenges linked to diverse motor and visual abilities, which show how curricular integration fosters the creation of innovative and inclusive design proposals.

◆ Theoretical foundation

Analysis of the relationship between theory and practice in graphic design.

The integration of theory into the practice of graphic design is not merely an academic formality, but a cornerstone in the construction of effective design. This fusion goes beyond satisfying the aesthetic standards of an era. It responds to the demand for the creation of graphic products that are both functional and consider the implications of decisions and actions towards society in general and diverse communities in particular. The interdependence of theory and practice in the educational context is therefore critical. It not only provides students with a deep understanding of essential principles but also urges them to encourage critical thinking that enables them to evaluate and integrate design theory into the labor market fabric (Lupton and Miller, 2015).

This relationship also enables students to engage in interdisciplinary collaborations, where the application of varied concepts serves as a preamble to the production of meaningful results through rigorous research. Moreover, the practical experience becomes a laboratory for the inquiry of new theoretical paradigms, allowing students not only to apply but also to expand and enrich the theoretical corpus of graphic design. In this way, a virtuous circle of learning and professional input is promoted, where theory guides practice and, in turn, practice inspires theory, thus maintaining an ever-dynamic and progressive field.

María Fernanda Ramírez Escobar mentions, in her article "Visualization practices in academic research in graphic design", that design is a catalyst that transforms everyday life, through the interaction with products, symbols, and services. These interactions not only offer new dimensions in terms of aesthetic canons, but also reflect and adapt to new societal needs. Like science, Design is an engine of social transformation; however, unlike scientists, whose main objective is the expansion of knowledge, designers focus on the realization of ideas and the resolution of practical problems (Ramirez, 2020).

Therefore, if Design has its own perspective to understand the world, we could infer that there are specific research methods aligned with the objectives of this field. However, it is common for design to adopt research techniques originating from the social sciences or even the experimental sciences in its approach (Ramírez, 2020). In this regard, it is important to take up what Christopher Frayling stated in his 1993 article, "Research into Art & Design", where he proposes three categories within design research: research on design, research for design, and research through design.

This classification is well-known in the field and has been influential in the understanding of how research is conducted in the discipline. Design research refers to research that focuses on the study and understanding of design itself. This may include the exploration of theories, principles, and practices, as well as the critical analysis of existing works of design. This research is often undertaken to further academic knowledge in the field of our discipline (Frayling, 1993).

Research for design involves research conducted to inform and improve the design process. This could involve market research, user analysis, and material and technology research, among other aspects. The latter category focuses on providing information and knowledge to guide and enrich the creative process of professional work (Frayling, 1993).

Finally, research through design uses design practices to generate knowledge. This involves the creation of projects as part of a wider research process, where the design activity itself becomes a research method. This research can produce new knowledge both in the field of design and in related fields (Frayling, 1993).

Understanding the various categories within design research enables us to delineate the central focus of this paper. A research approach to design will be addressed, drawing on theoretical principles provided by other social science disciplines, particularly semiotics and history. In the second semester of the program, students are introduced to semiotic theory and history in the subject Elements of Semiotics for Design.

From there, students apply theoretical principles and research methods to address social issues in other theoretical and practical subjects within the academic curriculum. In such a way that, on reaching the final year of the degree, the theoretical, methodological, and critical analysis principles learned are taken up again to apply them to the resolution of a specific social problem, in an interdisciplinary way, in the subjects Seminar in Design Research I and II.

Universidad Anahuac Mexico's educational approach: Competency-based approach

In Mexico, the competence-based educational approach took shape in 1993 with the establishment of the Standardized System of Labor Competences and the Labor Certification System, both products of a broader initiative of the Ministry of Public Education and the Ministry of Labor and Social Prevention for the technification and modernization of education (Sánchez and Aguilera, 2010). Competences are classified into three categories: basic, generic, and specific.

Basic competencies refer to the cognitive skills essential for learning in a specific professional area. Generic competencies are the set of essential skills and knowledge common to a profession, and specific competencies are crucial for professional practice and are adapted to specific performance contexts (Sánchez and Aguilera, 2010).

The competence approach promotes the accumulation of skills, knowledge, attitudes, abilities, and values that are intentionally exercised in the work context (Sánchez and Aguilera, 2010). Based on these attributes, higher education institutions configure detailed profiles for their graduates. It is at this junction that the focus on comprehensive competences in professional education invites a critical review of the interaction between theory and practice (Sánchez and Aguilera, 2010). Learning by competencies implies the absorption of deep and applicable knowledge that includes collaborative learning and the effective use of digital technologies; developing leadership skills; and establishing sustainable habits and interests aligned with ethical, social, and democratic values. In this sense, university teaching focuses on four fundamental pillars: learning to know, learning to do, learning to live together, and learning to be. This methodology seeks to ensure that students develop a greater consciousness of their context (Magaña, 2019).

It is therefore essential for teachers and program coordinators to identify key skills for theory a practice to be grounded in a creative organization that encompasses perception, symbolic function, synthesis, language, and dissociation skills, to integrate them into the educational process. Similarly, theory classes and workshops should combine global knowledge, professional skills, and individual experiences, using critical analysis of social reality and the dynamics of the labor market as tools.

In this way, the aim is to revitalize the social aspect of learning from a holistic perspective that considers economic, political, cultural, and corporate factors to foster more effective learning processes (Sánchez and Aguilera, 2010).

In this context, the Anahuac educational model has a pedagogical approach called the Competence Approach, integrating knowledge, skills, and aptitudes put into action towards professional training. This model was conceived through the interaction of three guidelines: rethinking the university, academic quality, and efficiency. The first guideline was based on questions such as: what is our mission and how to fulfill it; how does our educational model contribute to the mission; what is the role of the different members of the university community? The second guideline considered nationally and internationally accredited academic programs and comprehensive learning assessments. The third guide includes the most efficient use of resources.

The model contemplates the importance of comprehensive training and therefore considers five areas of training: spiritual, intellectual, human, professional, and social. For this reason, it contemplates the four levels that make up the training competencies: Knowledge: professional, humanistic, and general culture; skills: procedural techniques and processes and methods; Attitudes: leadership and teamwork and interdisciplinarity; Values: ethics, social responsibility, sustainability, and transcendence.

This context of the Anahuac educational model allows us to understand how principles such as social responsibility are inserted in the education of the student, with a view to the professional work of the graduate (Solórzano, 2020).

University social responsibility within the curriculum

The Universidad Anahuac México inscribes university social responsibility *(USR)* as a transversal axis of academic, research, and extension work. Within this framework, it is proposed that all research carried out by students and researchers should focus on projects that seek innovation and academic excellence and incorporate a firm commitment to current social challenges. Semiotics and research seminars are pillars in this effort, preparing professionals to address problems of social relevance from a critical and committed perspective, particularly those related toly those related to inclusion.

The notion of *USR* at the Universidad Anahuac México draws on the foundations of Corporate Social Responsibility *(CSR)*, extending its commitment beyond the corporate sphere to embrace a holistic vision that includes human dignity, respect for the environment, and sustainable development.

Sonia Barnetche Frías (2013) states in her phd thesis, this approach not only reflects a concern for human rights and social justice but also establishes clear guidelines for the holistic training of students, such as the link with companies and the commitment of graduates to responsible and ethical employment.

Luz Marina Ibarra (Ibarra et al., 2020) underlines the importance of outreach, research and teaching as fundamental axes for the effective implementation of USR. She proposes an interdisciplinary approach in teaching and research, where teachers and students collaborate on projects that are not only socially useful but also promote the formation of citizens who are aware of and committed to their environment.

In addition, university outreach is a key pillar in the mission of the Universidad Anahuac México, encompassing cultural outreach, social action, links with the socio-economic environment, and continuing education. This dimension of USR focuses on the dissemination of knowledge and culture to disadvantaged communities, promoting social justice and inclusive development. The university adopts various approaches to this task, from altruism to corporate engagement, and always responds to social needs from multiple perspectives.

Ultimately, the Universidad Anahuac México assumes as its mission the generation of a social conscience in its students, equipping them with the necessary elements to lead and promote the development of society with solidarity and subsidiarity. This commitment reflects a deep understanding of higher education as a tool for social transformation, where academic training and social responsibility are intertwined to form professionals who are not only competent in their fields of study, but also active agents of change in their communities.

Curricular structure of the Universidad Anahuac México, Faculty of Design

At the heart of the academic training in design at the Universidad Anahuac México lies a distinctive curricular structure, which harmonizes the theoretical, practice, and theoretical-practical dimensions of education. This integrated approach is reflected in the academic programs offered by the Faculty of Design, which comprise degrees in Industrial Design, Graphic Design, Multimedia Design, and Fashion Design and Innovation. Each program is built upon a robust theoretical foundation enriched with knowledge from various disciplines, thereby supporting and enhancing the project-based nature of the degrees.

The theoretical content serves not only as cognitive support for the development of practical projects but also establishes its own identity within the theoretical subjects of each program. This duality ensures that students not only learn how to create but also gain a profound understanding of the reasons behind and methods involved in their creative endeavors.

Within the curricular structure, a basic block common to all four-degree programs stands out, thus facilitating fundamental training that is shared and cohesive. In addition, there are common courses between the programs, which allows interdisciplinarity and mutual enrichment between specializations. A clear example of this integration is the subject Elements of Semiotics for Design, taken in the second semester and common to all degree programs, which focuses on providing a solid theoretical basis in semiotics applied to design.

On the other hand, in the last year of the undergraduate program (seventh and eighth semesters), there is a course for each of the programs with the base name Research Seminar, differentiating between programs by the "surname" of each one. These subjects have similar educational objectives, emphasizing the importance of research and theoretical reflection in the practice of design.

The 2025 curriculum already contemplates the Research Seminar… subjects as common and equivalent for the four bachelor's degrees, thus promoting a common collaborative and multi- and interdisciplinary work for students from the different areas of design. This approach not only prepares students to face complex challenges in their future professional careers but also ensures a training coherent with the graduate profiles, equipping them with professional and generic competencies essential for their insertion in the workplace.

It is worth mentioning that one of the fundamental guidelines of the graduate profile of all the university's degree programs is that students should have the ability to solve problems of a social nature for the benefit of society so that any topic related to social responsibility must be applied in research projects.

Application of semiotic theory in design projects.

The subject Elements of Semiotics for Design provides the second-semester student with a theoretical and conceptual basis that can be directly applied in the development of design projects. The learning objectives and thematic content are related to the development of projects in different dimensions. The student can relate the processes of perception to the fundamental concepts of semiotics, understanding how users perceive visual signs. Another dimension of the relationship is between semiotic processes with the processes of formal, spatial, and graphic configuration and the different modalities of visual communication. By understanding semiotic processes, such as the relationship between the sign and its meaning, designers can make informed decisions about how to organize and present visual elements in their design projects to achieve the desired impact.

In the same way, with the foundational knowledge acquired through the semiotic method, the student analyzes cultural phenomena, applying the theoretical aspects of semiotics. They analyze how different cultural contexts affect the perception and meaning of visual signs, which allows them to create messages that resonate with the target audience.

Graphic designers are inspired by everyday phenomena to create communicative messages, using semiotic models such as those of the Swiss linguist Ferdinand de Saussure (1857-1913) and the American mathematician and philosopher Charles Sanders Peirce (1839-1914). These models allow the analysis and generation of meaningful visual discourses. The process of signification, essential in graphic design, are understood through the relationship between visual signs and their meanings, facilitated by conceptual tools such as the models of the aforementioned Saussure and Peirce. Likewise, rhetoric and rhetorical figures are resources used in the generation of persuasive visual discourses; representation in contemporary culture offers perspectives on how visual signs are used in different media and cultural contexts, which is relevant for graphic designers when creating visual messages that are relevant and effective today.

Linking an analysis method from semiotics, in the second semester of training, provides a basis for the student to visualize the information that supports the denotation and connotation of the message to be created. This process helps the student conceptualize the problem and provide a solution based on a theoretical model.

Exploration of the relationship between Elements of Semiotics for Design and Research Seminar in Graphic Design I and II It was mentioned earlier that design tends to seek support in other fields of knowledge, such as philosophy, semiotics, or history, and this makes communication processes inherently interdisciplinary and laden with meaning. Communication, as an essential discipline, plays a key role in the design process. Disciplines such as semiotics, communication, and sociology seek to develop a language that constructs meaningful codes, which must be aligned with social needs and adapted to the context (Fragoso, 2008a). Since the 1960s, semiotics has become a fundamental pillar for the development and solidity of various disciplines, including design. Semiotic analysis not only participates in the design process but also enriches it. The various currents of semiotics compete to discern which of them offers a better understanding of the phenomenon under study. Semiotic theory, in its interdisciplinary nature, has adopted multiple perspectives, allowing for a deeper understanding and more accurate evaluation of visual language. This understanding is crucial to properly managing the codes that shape and structure the meaningful messages that define design in graphic communication (Fragoso, 2008b).

Communication design must focus on generating a visual language that creates meaningful codes capable of meeting the objectives of design, which can vary beyond design theories themselves. It is crucial from the beginning to integrate semiotic processes to link the specific context, visual communication needs, the satisfaction of these needs, and a process that fits within a disciplinary theoretical framework. This approach adapts to different cultural contexts where design is carried out, facing reality and subjecting design results to theories, sequential steps, and systematic evaluations (Fragoso, 2008b).

Design in general is built through a repertoire of signs and symbols that follow implicit rules to create, structure, and decipher messages. Codes are configured under certain norms and are based on specific reference systems. The designer, as a mediator, interprets and organizes elements of reality within this framework.

In this environment, the designer needs to consider the essential conditions for the effective transmission of meanings from a semiotic perspective, providing graphic designers with tools to analyze and create visual communications in an informed and effective manner. Semiotics facilitates the design of clear messages, often using metaphors and symbols to represent ideas that resonate with the target audience, taking into account cultural conventions (Fragoso, 2008a).

Learning on the subject of Elements of Semiotics relates perception to key semiotic concepts, cultural phenomena, and everyday situations to generate discourses based on semiotic models. Students learn about signs, systems of signs, meaning creation, communicative intentionality, and levels of signification to define the central concept of a design project (Investigaciones y Estudios Superiores, 2020).

From perception to language, thought, and speech, it is taught that we interpret the world through signs, generating mental images and ideas. Design is conceived as a language, a system of signs with a specific function. Students understand the importance of structure, syntax, and theories of representation in design, and how signs acquire value about others, influencing connotative perception and the study of rhetoric.

Through practical examples, literature, multimedia, and design projects, students explore communication, rhetoric, and cultural context, linking design with social and cultural issues and emphasizing its positive impact on society. Projects that address social needs are analyzed, inspired by initiatives such as the Danish Index Project, highlighting the importance of the guiding concept in the development of design projects (The Index Project, 2023).

It is important to mention that the professors, previously trained and many of them involved in social projects in their professional lives, have

used this medium as a source of teaching and practical application to solve real problems, which has fostered greater articulation between teaching, research, and social projection in design.

Currently, the idea that design degrees should incorporate scientific methods is gaining traction. This approach suggests that research work should be integrated into the curriculum, with systemic thinking supporting the resolution of various interdisciplinary problems. When the student reaches the final year of their bachelor's degree, although they have worked on several projects in previous subjects where they have identified design needs and opportunities, generated graphic proposals, and applied technical and quality details to solve them, they have not carried out a formal scientific research process for design. It is in the advanced semesters, the seventh and eighth, that they integrate a formal document of qualitative research, in which it is essential to identify the context to then relate it and offer a design proposal. They also understand the problem from a literal denotative perspective and understand the value of signs, solve design projects within a multidisciplinary vision, in a team setting.

The analysis and solution are carried out through a research process in which the student writes a document, formulates research questions, establishes a theoretical framework, a conceptual framework, and the design development, based on a research methodology in design. Each project is different according to the needs and focus of the design, and likewise, the method to be employed varies.

Center for Design Research (CID)

The Faculty of Design at Anahuac University Mexico oversees the Center for Design Research (CID, 2017), which aims to strengthen the analysis before solving contemporary problems through various research methodologies, multidisciplinary work, promotion, and dissemination of knowledge. This process will guide students to gradually deepen their understanding of solving design problems. In this regard, research coordination is responsible of providing students with the tools for reflective and critical action in design practice through the foundation of its principles, values, and social significance. As a result, and to offer a better educational proposal, the research area is organized based on the three types of research. Namely: basic research, applied research, and educational research (Comaprod, 2017). These are interrelated, as the impact of the generation of new knowledge by researchers will support the student in solving design problems. These solutions will be positive in terms of the pedagogical applications that professors discover in the classroom, and so on.

Additionally, the CID actively collaborates with the coordinators of the bachelor's programs in Graphic Design, Industrial Design, and Multimedia

Design to oversee the students' applied research projects generated in the Research Seminar I and II courses, primarily. However, depending on the interest of the professor and coordinator, subjects such as Practicum and those related to project development can also be involved. In this way, between the academic coordination and the CID, strategies are designed so that research gradually permeates the student as they progress in their learning journey. Concurrently, the Faculty establishes three lines of research: Trends, Practice, and Teaching in Design. From these lines, different strategies are outlined in the various fields of action in which Anahuac graduates may venture.

It is worth noting that, at the end of each semester, the university holds its traditional annual research poster contest, attended by students from all specialties, both undergraduate and graduate, with a prominent participation from the Faculty of Design. Students from this Faculty have consistently achieved top positions on multiple occasions, demonstrating with their successes that the multidisciplinary and interdisciplinary approach effectively addresses social responsibility issues. Moreover, this competition highlights how the integration of curricular content drives the generation of design proposals that are both innovative and accessible. The process for selecting the best posters is based on the contest's guidelines, the student's ability to synthesize, and the design proposal meeting the minimum quality and function requirements. The students are generally challenged to apply theory to practice, identifying design opportunities based on a guiding concept. These principles are promoted for integration into subsequent theoretical and project-based courses, involving students in basic research, recognizing reliable sources, and citing according to APA standards.

The CID coordination invites professors and students from the Faculty's academic programs to develop research posters from theoretical course projects. It also provides guidance and follow-up to professors and students for participating in the annual research poster contest and developing research articles for publication in high-impact academic and scientific journals.

◆ **Results**   *Description and analysis of the final research poster of the research seminar*

When studying the subjects of the Research Seminar..., students review research methods for design depending on the problem to be solved; one of them is focused on People with Disabilities (PwD). This method is designed to facilitate professionals and students in the field in the development of products that meet the practical needs of PwD and their interaction with the environment.

The objective is to promote an inclusive and collaborative design practice, integrating both the perspective of disability - by the models proposed by the International Convention on the Rights of PwD - and the social and identity dimensions, in addition to reflecting on the role of design in creating products for this specific group (Tanaka Tsutsumi et al., 2024).

In addition to this method, analytical tools are used such as the AEIOU framework, which allows us to examine how PwD use their senses, skills, objects, and their own body to interact with their environment, or LEGO® Serious Play®, a technique designed for the professional environment that involves the construction of models with blocks to represent abstract concepts metaphorically. Also field analysis techniques are added, allowing the student to interact with the user's profile, that is, in this case, people with disabilities.s.

This approach not only concretizes students' thinking but also deepens understanding to improve organizational development and solution adoption. Thus, a critical reflection on the meaning of inclusion and its responsibility in the development of accessible products is promoted among designers (Tanaka Tsutsumi et al., 2024).

At the same time, depending on the topic to be investigated, the method of Bruce Archer (1922-2005) has also been implemented, whose proposal invites us to systematize the process of selecting materials and forms to satisfy the functionality and aesthetic codes within the available means of production. It is divided into three stages: analytical, creative, and executive. Another method used is the projectual method of the Italian artist and designer Bruno Munari (1907-1998), who emphasizes that the designer is an intentional informant and, therefore, must ensure that the meaning of his messages is received fully. The most important point of visual communication is the process of producing visual messages, which places them in a communication scheme.

In all the final research projects of the Research Seminar... various tools were used, such as observation with photographs, mental maps, systematic description, and with this, all the documentary, photographic, and field material was obtained. After their proposal, each student experimented with possible solutions through surveys, tests, trials, and feedback from experts.

For the final research paper, each student resumed the use of research tools such as APA 7 citations, recognized reliable references, and based on this, wrote an academic essay where they broke down the entire process, conclusions, and design contribution. Finally, they designed a research poster (synthesis activity) and presented a presentation on their topic in front of various experts.

In each edition of the institutional research poster competition, the research posters and prototypes resulting from the Research Seminar course are chosen from among the coordinators. Those that meet the scheme of title, authors, introduction, objectives, methodology, results, conclusions, and references in APA format are selected. The objective is for the student, through their poster, to ensure that the viewer understands the relevance and objectives of the research, identifies the main results, and has the necessary information to grasp the study's context. These aspects will be further addressed during the presentation and evaluation.

For this document, two research posters with favorable outcomes are presented.

The first is titled: "*Sientocolor:* Design of a tactile system that allows visually impaired people to independently identify the colors of clothing items," by the student Harumi Tanaka Tsutsumi, and the professor Alfonso Díaz Villaseñor (see figure 1).

Figure 1. *Research poster "Sientocolor: Design of a tactile system that allows visually impaired people to independently identify the colors of clothing items." Source: Made by student Harumi Tanaka Tsutsumi, 2022*

The objective of the project is to examine and apply user-centered design methods for creating an innovative tactile system that enables visually impaired individuals to identify colors in clothing autonomously. This system is intended to significantly improve the shopping experience in department stores for blind users (Tanaka Tsutsumi et al., 2024).

The underlying hypothesis is that by co-designing easily recognizable tactile codes, independence can be granted to users in selecting their outfits, thereby enhancing their shopping experience. This project aims to amplify the autonomy and quality of life for vulnerable individuals and communities, promoting the creation of more accessible spaces and ultimately contributing to the formation of a more inclusive society, in line with the principles of semiotics and applied research (Tanaka Tsutsumi et al., 2024).

The research won second place in the undergraduate - research competition and published the article "*Sientocolor:* Design of a tactile system that allows visually impaired people to independently identify the colors of clothing items" in the journal *Economía Creativa*, indexed in CONAHCyT. This confirms that theory can be applied to practice through a social responsibility project, and the result demonstrates the triad of theory + practice + social responsibility to generate an innovative and accessible design.

The second example is titled "The Semiotics of Warm and Cool Colors and Their Influence on Gender Discrimination," by the student Yecaterina Magnolia Álvarez Khovilaguina (see figure 2).
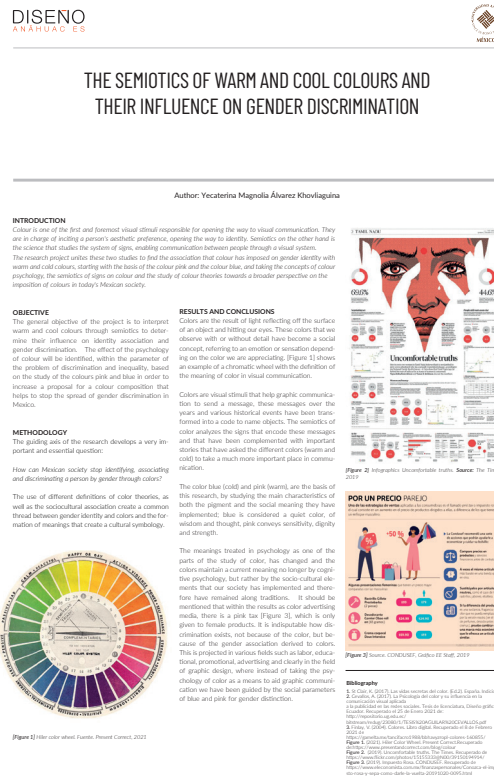

Figure 2. *Research poster "The Semiotics of Warm and Cool Colors and Their Influence on Gender Discrimination. Source: Made by student Yecaterina Magnolia Álvarez Khovilaguina, 2020.*

This research aimed to determine the influence of advertising on the association of color with identity and gender discrimination in contemporary Mexican society.

Color plays a fundamental role as one of the first visual stimuli that facilitate visual communication and contribute to the formation of a person's aesthetic identity. On the other hand, semiotics is the discipline that analyzes the system of signs that enables visual communication between individuals.

The research project merges these two fields of study to explore the influence of color on the construction of gender identity, particularly through the association of warm and cool colors, such as pink and blue, and the application of concepts from color psychology, semiotics of color-related signs, and color theories. This provides a broader view of the influence of colors in contemporary Mexican society.

◈ Conclusions

How does the integration of semiotics and research methods in the subjects Elements of Semiotics for Design and Research Seminar influence the ability of university graphic designers from Anáhuac University Mexico to develop design proposals that are culturally relevant and meaningful in the context of contemporary graphic design?

Teaching semiotics in theoretical subjects, such as Elements of Semiotics for Design, provides students with a theoretical and conceptual foundation to understand how visual signs are perceived and signified by users. This allows them to make informed decisions about the organization and presentation of visual elements in graphic design projects, maximizing their impact and resonance with the target audience. Additionally, by analyzing cultural phenomena from a semiotic perspective, students understand how different cultural contexts influence the perception and meaning of visual signs, enabling them to create messages that are culturally relevant and effective.

By applying semiotic models such as those of Saussure and Peirce, future professionals can analyze and understand how meanings are constructed and understood in messages, which is essential for graphic design. Moreover, the study of rhetoric and rhetorical figures provides designers with tools to generate persuasive visual discourses, while understanding representation in contemporary culture allows them to create visual messages that are relevant and effective across various media and cultural contexts.

Applying inclusion-centered methodologies in subjects such as Research Seminar in Graphic Design I and Research Seminar in Graphic Design II, students learn to consider the practical needs of specific groups, such as

people with disabilities, thus promoting a more collaborative and inclusive design practice.

Similarly, it has been observed how the application of knowledge acquired through the semiotic method allows students to analyze cultural phenomena such as the significant association of color with gender identity. This way, it is evident how different cultural contexts affect the perception and meaning of visual signs. The integration of semiotics and research methods in graphic design subjects enhances designers' ability to create culturally relevant and meaningful proposals in the current context.

The contribution of this study demonstrates that the link between theory and design practice is fundamental, even from a subject taken at the beginning of the degree program and impacting the final semesters. Similarly, it demonstrates that the triad of social responsibility, theory, and practice works integrally so that students can solve various social issues through the communication and language offered by design.

◈ References

Barnetche, S. (2013). La responsabilidad social universitaria: una propuesta para construir los ámbitos que la integran. [Tesis doctoral]. México: Universidad Anáhuac.

Centro de Investigación en el Diseño (CID). (2017). Universidad Anáhuac México. Retrieved on August 23, 2017 from https://www.anahuac.mx/mexico/EscuelasyFacultades/diseno/investigacion

Comaprod (2017). Guía para la evaluación educativa. Comaprod: México.

Fragoso, O. (2008a). La aplicación de la semiótica al proceso del diseño. Actas de Diseño 5 (pp. 31-248). Argentina: Facultad de Diseño y Comunicación-Universidad de Palermo.

Fragoso, O. (2008b). El Diseño como actividad multidisciplinaria. Revista del Centro de Investigación. Universidad La Salle, 8(29), 55-68. Retrieved on February 5, 2024 from https://doi.org/10.26457/recein.v8i29.203

Frayling, C. (1993). Research into Art & Design. Royal College of Art. Research Paper, 1(1), 1-9. Retrieved on February 7, 2024 from https://researchonline.rca.ac.uk/384/

Ibarra Uribe, L. M., Fonseca Bautista, C. D. y Santiago García, R. (2020). La responsabilidad social universitaria. Misión e impactos sociales. Sinéctica, (54), e1008. https://doi.org/10.31391/s2007-7033(2020)0054-011

Investigaciones y Estudios Superiores. (2020). Plan de estudios de la Licenciatura en Diseño Gráfico. México: Universidad Anáhuac.

Lupton, E. y Miller, A. (2015). Teoría Visible. México: Ars Optika.

Magaña, C. (2019). La investigación, enseñanza y acción con enfoque social en la Escuela de Diseño de la Universidad Anáhuac. Estudios sobre Arte Actual, (7), 289-294. Retrieved on January 15, 2024 https://estudiossobrearteactual.com/wp-content/uploads/2023/12/6.-CAROLINA-MAGANA.pdf

Barnetche, S. (2013). La responsabilidad social universitaria: una propuesta para construir los ámbitos que la integran. [Tesis doctoral]. México: Universidad Anáhuac.

Centro de Investigación en el Diseño (CID). (2017). Universidad Anáhuac México. Retrieved on August 23, 2017 from https://www.anahuac.mx/mexico/EscuelasyFacultades/diseno/investigacion

Comaprod (2017). Guía para la evaluación educativa. Comaprod: México.

Fragoso, O. (2008a). La aplicación de la semiótica al proceso del diseño. Actas de Diseño 5 (pp. 31-248). Argentina: Facultad de Diseño y Comunicación-Universidad de Palermo.

Fragoso, O. (2008b). El Diseño como actividad multidisciplinaria. Revista del Centro de Investigación. Universidad La Salle, 8(29), 55-68. Retrieved on February 5, 2024 from https://doi.org/10.26457/recein.v8i29.203

Frayling, C. (1993). Research into Art & Design. Royal College of Art. Research Paper, 1(1), 1-9. Retrieved on February 7, 2024 from https://researchonline.rca.ac.uk/384/

Ibarra Uribe, L. M., Fonseca Bautista, C. D. y Santiago García, R. (2020). La responsabilidad social universitaria. Misión e impactos sociales. Sinéctica, (54), e1008. https://doi.org/10.31391/s2007-7033(2020)0054-011

Investigaciones y Estudios Superiores. (2020). Plan de estudios de la Licenciatura en Diseño Gráfico. México: Universidad Anáhuac.

Lupton, E. y Miller, A. (2015). Teoría Visible. México: Ars Optika.

Magaña, C. (2019). La investigación, enseñanza y acción con enfoque social en la Escuela de Diseño de la Universidad Anáhuac. Estudios sobre Arte Actual, (7), 289-294. Retrieved on January 15, 2024 https://estudiossobrearteactual.com/wp-content/uploads/2023/12/6.-CAROLINA-MAGANA.pdf

Ramírez, M. F. (2020). Prácticas de visualización en la investigación académica en diseño gráfico. Kepes, 17(22), 76-108. Retrieved on February 10, 2024 from https://revistasojs.ucaldas.edu.co/index.php/kepes/article/view/2603

Sánchez, M. E. y Aguilera, J. M. (2010, julio 26-28). La enseñanza del diseño gráfico en base a las competencias profesionales [Conferencia]. I Congreso Latinoamericano de Enseñanza en diseño. Argentina: Universidad de Palermo.

Solórzano, M. (2020). Planeación estratégica Diseño gráfico 2019-2025. [Documento para acreditación ante Comaprod]. México: Universidad Anáhuac.

Tanaka Tsutsumi, H. S., Díaz Villaseñor, A. y Magaña Fajardo, C. (2024). Sientocolor: Diseño de un sistema táctil que le permita a las personas con discapacidad visual identificar los colores de las prendas de ropa de manera independiente. Economía Creativa, (19), 51-77. Retrieved on March 26, 2024 from https://ciecpress.centro.edu.mx/ojs/index.php/CentroTI/article/view/688

The Index Project. (2023). The Index Project. Retrieved on March 5, 2023 from https://theindexproject.org/

◈ **About the authors**

Mónica Solórzano Zavala
Doctoral student in Humanities specializing in Cultural Studies, with a master's degree in Editorial Design and Semiotics from Universidad Anahuac México. Additionally, I hold degrees in Graphic Design from La Salle University and Photography from the Active School of Photography. She is currently the academic coordinator of the degree in Graphic Design at the Universidad Anahuac México, on the south campus. His research is related to publishing production in Mexico in the 6th and 7th centuries. In the magazine Tempus has published the article *"Incunabula chronological tour of Spain and Mexico through the life and work of the Crombergers, Juan Pablos and Pedro Ocharte 1453-1600"*.

Carolina Magaña Fajardo
Phd, master´s degree, and architect from the National Autonomous University of Mexico (unam); He has postdoctoral research stays at the unam in the Institute of Aesthetic Research.

She specializes in 20th-century History of Architecture and Design. Currently. She coordinates the research area and is a researcher at the Faculty of Design of the Anahuac University; She is a professor at the UNAM Faculty of Architecture and is part of the National System of Researchers, level 1st. She has published the book El Art Deco in Mexico City: A Retrospective of an Architectural Movement.