

# Mapping Graphic Design Scopus Database Framings: A Scoping And Delphi Review



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## ABSTRACT

Although academic work on graphic design has made significant advancements, its framing by articles in journals may hinder the further development of research in graphic design. Previous studies attribute the slow further development to methodological difficulties triggered by the inappropriate application of scientific methods in design. However, the authors hold the view that the struggle is due to how researchers have framed the focus of graphic design in academic research. The study employed a scientometric review to examine trends in graphic design research from 2000 to 2023 in Scopus. VOSviewer was used to analyse co-author, co-citation and co-word maps. The study employed a scientometric review to survey graphic design research from 2000 to 2023, selecting 263 articles based on predefined criteria using the Scopus website from a total of 883,640 articles between August and September 2023. VOSviewer was used to analyse coauthor, co-citation and co-keyword maps. The results were sent to two experts for Delphi review. The results showed that the focus of graphic design was visual communication, design layout, typography, design processes and design education. However, Delphi review points out that the key areas framing graphic design are not representative and give an incomplete picture of graphic design. The study unveils the limitations of the design journals based on their published focus on graphic design articles and recommends the need for the journals to consider the underrepresentation for special issues.

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## Publication History

Received: 9<sup>th</sup> August,

2025

Accepted: 20<sup>th</sup>

November, 2025

Published online:

30<sup>th</sup> December, 2025

## To Cite this Article:

Bonsu, Ginn Assibey ,  
Rahman Adam, and Agnes  
Decardi-Nelson.

"Mapping Graphic Design  
Scopus Database  
Framings: A Scoping And  
Delphi Review,"

*E-Journal of Humanities,  
Arts and Social Sciences* 6,

no. 15 (2025):

4473 - 4489,

[https://doi.org/10.38159/  
ehass.202561519](https://doi.org/10.38159/ehass.202561519).

*Keywords: Graphic Design, Delphi, Scoping Review, VOSviewer.*

## INTRODUCTION

This study provides a comprehensive scientometric overview of graphic design research from 2000 to 2023 using data extracted from the Scopus database. Despite notable advancements in the academic engagement with graphic design, concerns persist about the slow maturation of its research culture. Scholars often attribute this stagnation to methodological challenges, particularly the misapplication of scientific methods within the domain of design.<sup>1</sup> However, this study posits that the core issue may lie not solely in methodology but in how graphic design has been conceptually framed and operationalised in scholarly discourse.

The concern regarding the intellectual fragility of graphic design research has been echoed by Harland et al., who argue that the theoretical and conceptual foundation of communication design remains

<sup>1</sup> Violeta Clemente, Katja Tschimmel, and Fátima Pombo, "A Future Scenario for a Methodological Approach Applied to PhD Design Research. Development of an Analytical Canvas," *The Design Journal* 20, no. sup1 (July 28, 2017): S792–802, <https://doi.org/10.1080/14606925.2017.1353025>.

"generically weak."<sup>2</sup> Similarly, Yeo contends that although graphic design research is relatively young, it is largely driven by individual artist-researchers whose methods stem from personal creativity rather than structured academic inquiry.<sup>3</sup> These individualistic approaches have often escaped critical academic scrutiny, raising concerns about their reliability and generalisability.<sup>4</sup> Yeo advocates for a shift toward systematic, rigorous, and orderly research practices that can foster a more robust and coherent academic culture in graphic design.<sup>5</sup>

In explaining the lack of methodological cohesion, Corazzo et al. point to the scarcity of mentors, senior scholars, and trailblazers in the field, factors that have contributed to the absence of standardised research practices.<sup>6</sup> Responding to this, Clemente et. al. highlight a growing movement within the design community to transition from a predominantly practice-led paradigm to one that is more research-driven.<sup>7</sup> This transition, however, requires design researchers to establish strong epistemological and methodological foundations capable of supporting the academic integrity of the discipline.

Nevertheless, this shift is not without challenges. Clemente et. al. note that traditional scientific methodologies may be ill-equipped to address the complexities inherent in design processes.<sup>8</sup> Camino adds that this creates confusion among design researchers, who find themselves torn between adopting academic research protocols and relying on project-led practices.<sup>9</sup> This tension has led to ongoing debates between those who view design as epistemologically unique and resistant to conventional academic methodologies, and those who believe that qualitative research, by its open and adaptable nature, can accommodate the intricacies of design inquiry.<sup>10</sup>

While much of the literature critiques methodological weaknesses, this study argues that the issue extends beyond method alone. The low research output in graphic design may stem from a possible narrow thematic focus of the journals that publish in the field in certain research databases. When only a limited set of themes is consistently prioritised, they constrain the kinds of inquiries researchers feel are legitimate or publishable, thereby suppressing broader exploration.<sup>11</sup> This restricted publication landscape can unintentionally signal that graphic design's scope is inherently limited, discouraging diverse or innovative research directions.<sup>12</sup> Consequently, the field's overall academic visibility and growth remain constrained, reinforcing perceptions of weak development and limited scholarly maturity.<sup>13</sup>

In an attempt to explore the assumption of the narrow thematic focus of the journals we employed a scientometric review of 263 articles selected from a dataset of 883,640 publications on Scopus between August and September 2023, and by using VOSviewer to analyse co-author, co-citation, and co-keyword relationships, this research aims to map the intellectual terrain of graphic design scholarship over the past two decades. A Delphi review by two experts revealed that dominant research themes, such as visual communication, design layout, typography, design processes, and design education, are not fully representative of the broader scope of graphic design. This suggests the need for a more inclusive and conceptually grounded research framework. The subsequent sections of this study, therefore, attempt to

<sup>2</sup> Robert Harland et al., *Graphic Design Research: A Cause for the Concerned*, 2018, <https://doi.org/10.21606/drs.2018.389>.

<sup>3</sup> Jesvin Puay-Hwa Yeo, "An Overview of Research Methods in Visual Communication Design Education," *International Journal of Design Creativity and Innovation* 2, no. 1 (2014): 51–62.

<sup>4</sup> Minacha Camino, "An Examination of the Journal Used as a Vehicle to Bring about a Synthesis between Theory and Practice in Art and Design Higher Education," *Journal of Writing in Creative Practice* 3, no. 3 (December 1, 2010): 317–40, [https://doi.org/10.1386/jwcp.3.3.317\\_1](https://doi.org/10.1386/jwcp.3.3.317_1).

<sup>5</sup> Yeo, "An Overview of Research Methods in Visual Communication Design Education."

<sup>6</sup> James Corazzo et al., "The Challenges for Graphic Design in Establishing an Academic Research Culture: Lessons from the Research Excellence Framework 2014," *The Design Journal* 23, no. 1 (January 2, 2020): 7–29, <https://doi.org/10.1080/14606925.2019.1682446>.

<sup>7</sup> Clemente, Tschimmel, and Pombo, "A Future Scenario for a Methodological Approach Applied to PhD Design Research. Development of an Analytical Canvas."

<sup>8</sup> Clemente, Tschimmel, and Pombo, "A Future Scenario for a Methodological Approach Applied to PhD Design Research. Development of an Analytical Canvas."

<sup>9</sup> Camino, "An Examination of the Journal Used as a Vehicle to Bring about a Synthesis between Theory and Practice in Art and Design Higher Education."

<sup>10</sup> Alain Findeli et al., "Research through Design and Transdisciplinarity: A Tentative Contribution to the Methodology of Design Research," *Focused-Current Design Research Projects and Methods*, 2008, 67–94.

<sup>11</sup> Harland et al., *Graphic Design Research: A Cause for the Concerned*.

<sup>12</sup> Yeo, "An Overview of Research Methods in Visual Communication Design Education."

<sup>13</sup> Corazzo et al., "The Challenges for Graphic Design in Establishing an Academic Research Culture: Lessons from the Research Excellence Framework 2014."

extend this overview, offering a critical lens through which to appreciate the current state and future direction of graphic design research.

## LITERATURE REVIEW

“Graphic design research: a cause for concern is a paper that attempts to capture the landscape of graphic design research based on the 2014 United Kingdom (UK) Research Excellence Framework report on the state of graphic design research”.<sup>14</sup> Harland et al. advance that though graphic design is regarded as the most popular design discipline, the intellectual and theoretical underpinning is generally weak.<sup>15</sup> Corazzo et al. also express a similar sentiment that graphic design is tagged as a discipline struggling to establish an academic culture.<sup>16</sup> These researchers' constructive assertions directed at graphic design have triggered concern to inquire into the cause of the weak research input from graphic design academics. It was discovered that academic research in graphic design is not considered necessary because it is perceived by major researchers and practitioners as an action research-driven discipline, which is complex to handle with traditional academic research tools (Harland et al., 2018). Most graphic design educators attribute the low or weak research output in graphic design to the limited number of graphic design researchers.<sup>17</sup> Other authors blame the criticism of graphic design research on confusion between graphic design and graphic design research, which does not make clear the relationship between practice and research.<sup>18</sup> The reasons given for the limited research output in graphic design, though, are tangible but can be mitigated when a clear path is shown for the future of graphic design research.

Corazzo et al. assert that the constructive assertions directed at graphic design research may encourage graphic design researchers to shift their perceptions that position graphic design as an intuitively-driven activity to a research-driven discipline.<sup>19</sup> Thus, these criticisms are valid as far as the graphic design research culture establishment is concerned. Walker, however, contends that graphic design research is not as weak as it is perceived because it has a strong historical research focus geared towards works that are archival-inclined and its grounded methods of reading, analysis, comparison and synthesis.<sup>20</sup> Walker further argues that these graphic design works have inspired studies whose outputs are monographs, journal articles and exhibitions with a focus on graphic design.<sup>21</sup> The outputs on graphic design have positioned the discipline well on design organisational platforms. Walker thus elicits that graphic artefacts and graphic artists are the focus of graphic design research, not the practice of graphic design.<sup>22</sup> In the context of Walker, graphic design is perceived as an artefact, and therefore, the research on these artefacts is related to a practice-based approach, which showcases methods that do not agree with a traditional scientific academic research culture.

Most of the concerns raised are based on methodological challenges in graphic design research, but the challenges need a broader picture to understand and know how to handle them. Thus, irrespective of all the concerns raised by the diverse researchers accounting for limited research in graphic design, and those based on the 2014 UK Research Excellence Framework (REF2014), which are UK focused,<sup>23</sup> this study is of the view that there is a need for a holistic survey from a broader perspective of graphic design research as a retrospective account to help know what has been done, the challenges researchers have noted and the way forward based on the proposed areas to help direct researchers in graphic design to increase graphic design academic contributions.

<sup>14</sup> Harland et al., *Graphic Design Research: A Cause for the Concerned*.

<sup>15</sup> Harland et al., *Graphic Design Research: A Cause for the Concerned*.

<sup>16</sup> Corazzo et al., “The Challenges for Graphic Design in Establishing an Academic Research Culture: Lessons from the Research Excellence Framework 2014.”

<sup>17</sup> Harland et al., *Graphic Design Research: A Cause for the Concerned*.

<sup>18</sup> Ryan Boone et al., “Cash Transfer Programs and Agricultural Production: The Case of Malawi,” *Agricultural Economics* 44, no. 3 (2013): 365–78.

<sup>19</sup> Corazzo et al., “The Challenges for Graphic Design in Establishing an Academic Research Culture: Lessons from the Research Excellence Framework 2014.”

<sup>20</sup> Sue Walker, “Research in Graphic Design,” *The Design Journal* 20, no. 5 (September 3, 2017): 549–59, <https://doi.org/10.1080/14606925.2017.1347416>.

<sup>21</sup> Walker, “Research in Graphic Design.”

<sup>22</sup> Walker, “Research in Graphic Design.”

<sup>23</sup> Harland et al., *Graphic Design Research: A Cause for the Concerned*.

## METHODOLOGY

Articles on graphic design were examined using scientometric methods in this study. A scientometric research approach was adopted to achieve a level of accuracy in the data analysis, ensuring unbiased results. Aside from the scientometric review, the study also employed a Delphi review from five graphic design experts who reviewed the scientometric results and gave their feedback based on how the authors have framed graphic design in the Scopus database. The first stage in this scientometric study was the selection of the appropriate database for literature searches based on efficiency and objectivity. Thus, Scopus was selected due to its wider base of coverage in terms of recent research publications,<sup>24</sup> and it provides broader coverage of journals in the Arts, Humanities, and design-related fields, ensuring a more comprehensive dataset for graphic design research. Its richer metadata structure and extensive keyword indexing also support more robust scientometric mapping, particularly when using tools like VOSviewer. More so, Scopus was selected due to its ease of use for conducting a literature survey based on its attributes of capturing detailed author information such as authors' institutional affiliations, citation information, bibliographical information, abstract and keywords, funding details and other relevant information. Therefore, Scopus offered greater methodological suitability and transparency for the aims of this study.

The methodology used for the scientometric and thematic analysis consisted of four stages, which were data search approach, data filtration, bibliometric analysis and thematic review as captured in Figure 1. In conducting the Scopus data search on the graphic design research survey, the search string was "graphic AND design". The search string without any filters using article titles, abstracts and keywords resulted in 883,640 initial documents. Filters were then applied to the initial results for data refinement to remove irrelevant articles. In using the filters, under the "document type", only articles were selected, in the case of "limit to language", English was selected, and Arts and Humanities was selected for the "subject area". Under "keyword" graphic design, visual communication and communication design were selected. The publication year selected was from 2000 to 2023. After the usage of the filters, the resulting articles were 226. The resulting document was first analysed for annual publication trends, after which it was exported from Scopus in the Comma Separated Values (CSV) format for analysis using VOSviewer, developed by Nees Jan van Eck and Ludo Waltman (Mongeon & Paul-Hus, 2016) for data mapping and visualisation. Charts and maps were used for the presentation of the results. The data search and all the analysis were done between August and September 2023.

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<sup>24</sup> John Mingers and Loet Leydesdorff, "A Review of Theory and Practice in Scientometrics," *European Journal of Operational Research* 246, no. 1 (October 2015): 1–19, <https://doi.org/10.1016/j.ejor.2015.04.002>; Andrea Caputo and Mariya Kargina, "A User-Friendly Method to Merge Scopus and Web of Science Data during Bibliometric Analysis," *Journal of Marketing Analytics* 10, no. 1 (March 22, 2022): 82–88, <https://doi.org/10.1057/s41270-021-00142-7>.

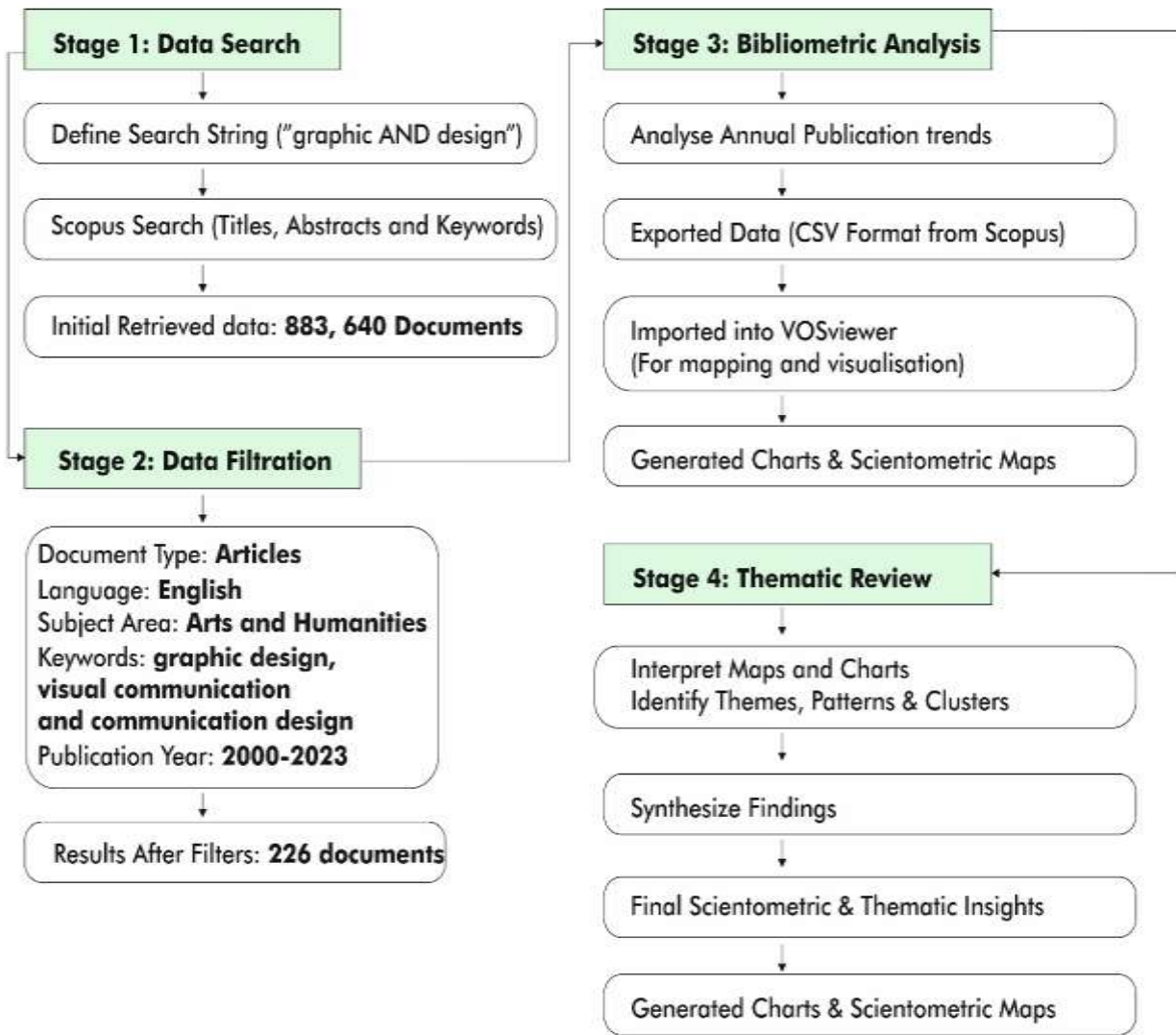


Figure 1: Scientometric Chart Flow

In the case of the Delphi approach, it was conducted to validate and refine the scientometric framing of graphic design used in the study. Five experts were purposefully selected based on their professional backgrounds in graphic design practice, teaching, and research, as well as their familiarity with scientometric analysis and the representation of design fields within academic databases such as Scopus. Their established experience and domain knowledge made them suitable for providing an informed evaluation of the study's conceptual boundaries.

The Delphi procedure consisted of two iterative rounds. In Round 1, experts were presented with the initial scientometric results, including the search terms, keyword clusters, and conceptual groupings that shaped how graphic design was represented in the Scopus dataset. They provided qualitative feedback on the clarity, accuracy, and completeness of this framing, identifying potential omissions, misclassifications, or biases. A synthesised summary of the Round 1 feedback was then developed and shared with the panel in Round 2. Experts were asked to review the consolidated interpretation of their responses, confirm its accuracy, and rate the relevance and appropriateness of the revised concepts using a Likert scale. This round aimed to determine the level of agreement among participants and to stabilise the feedback. Consensus was assessed using standard Delphi criteria. An agreement was defined as at least 70% of experts rating an item as relevant or highly relevant, supplemented by evaluating the interquartile range ( $IQR \leq 1$ ) to ensure low variability. Qualitative convergence across comments was also considered. Items that reached consensus informed the refinement of the final conceptual framework used in the scientometric analysis.

## PRESENTATION OF FINDINGS

The findings were based on the keywords, which were graphic design, visual communication, communication design and graphic designers. The findings are categorised into the scientometric analysis, which comprises publication trend, research contributing countries, top cited authors and their research focus, co-occurrence of keywords for thematic analysis with focus on current research focus and future research directions based on the Delphi review.

### *Yearly publication trend in graphic design research based on Scopus data from 2000 to 2023*

The total number of publications from 2000 to 2023 shows a steady advancement in graphic design research from different disciplines, as captured in Figure 2. From 2004 to 2009, the total number of publications averaged 3, which was very weak per research output in graphic design. From 2010 to 2015, the average publication per year was 12, indicating a 120% increment in publications that cover graphic design research based on the data mined from Scopus as of 12th October 2023. In the case of publication average from 2016 to 2023, it was pegged at 30. The publication trends, therefore, show that the interest in graphic design research is on the upsurge due to the need for graphic design educators to establish an academic culture as advanced by Clemente et al.<sup>25</sup> The publication trends, by implication, also indicate that design practice is shifting from intuition to research-driven, since data gives true reflections of phenomena.

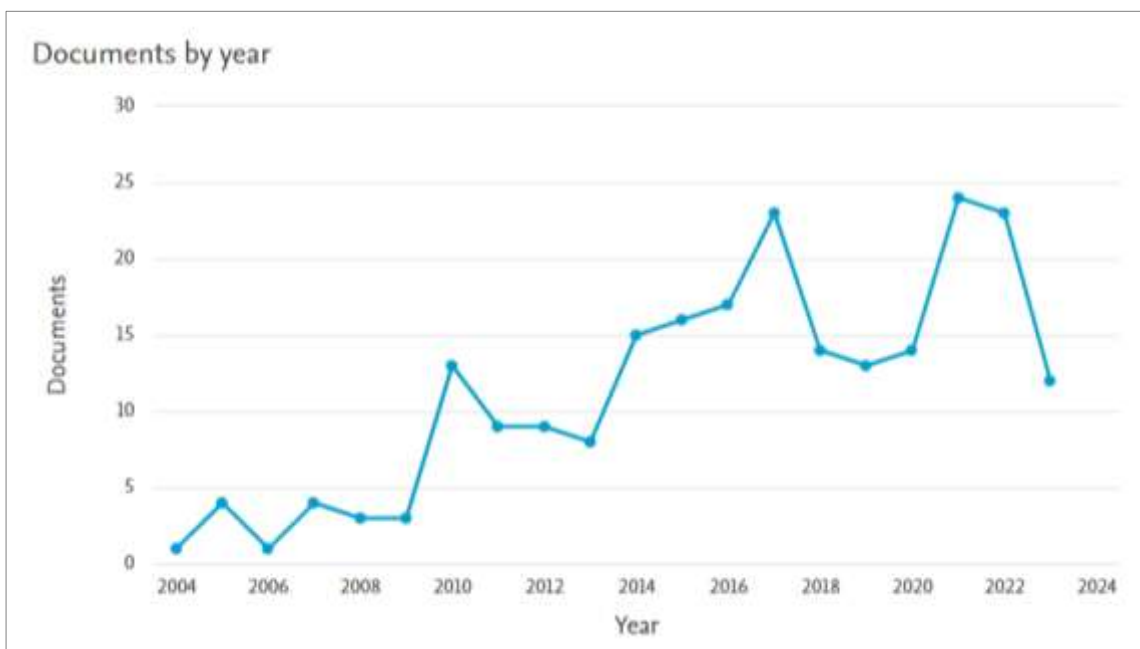


Figure 2: Publication trends in graphic design research from 2000 to 2023 from Scopus

### *Graphic design research output contributing countries*

The analysis of the data showed 41 contributing countries in graphic design research. Out of the 41 countries United States of America had the highest number of publications, which was 59 with 135 citations. The United Kingdom also had 38 publications with 343 citations. Australia had 26 publications with 303 citations. The Netherlands, though, had 6 publications; its citation was 158. New Zealand also had 8 publications with 70 citations. The rest of the countries had an average of 2 publications with an average of 10 citations. The United States of America, the United Kingdom and Australia are actually leading the research in graphic design, which indicates that they are on top of trending issues in graphic design research and direct the course of the discipline. It is therefore clear that the research focus of these countries should inform the research of other countries in order to advance research in graphic design that is meaningful and impactful. 41 countries' involvement in graphic design research is a significant

<sup>25</sup> Clemente, Tschimmel, and Pombo, "A Future Scenario for a Methodological Approach Applied to PhD Design Research. Development of an Analytical Canvas."

contribution as far as the establishment of graphic design as an academic discipline is concerned. Table 1 gives details on countries' graphic design research publications and citations.

**Table 1: Graphic design research output contributing countries**

No.	Country	Documents	Citations
1	Australia	26	303
2	Austria	3	5
3	Brazil	4	14
4	Canada	4	18
5	China	2	14
6	Colombia	2	5
7	Croatia	1	2
8	Denmark	5	42
9	Finland	3	26
10	France	1	2
11	Fwo	1	1
12	Germany	5	23
13	Ghana	1	10
14	India	1	1
15	Ireland	1	1
16	Israel	1	4
17	Italy	7	13
18	Malaysia	2	12
19	Netherlands	6	158
20	New Zealand	8	70
21	Nigeria	1	1
22	Norway	1	1
23	Oman	1	1
24	Oxford University	1	2
25	Portugal	6	8
26	Qatar	3	4
27	Romania	1	3
28	Russian Federation	1	5
29	Slovenia	1	5
30	South Africa	3	9
31	South Korea	4	7
32	Spain	4	14
33	Sweden	3	29
34	Switzerland	5	6
35	Taiwan	1	8
36	Thailand	1	1
37	Turkey	3	10
38	Ukraine	1	1
39	United Kingdom	38	343
40	United States	59	135
41	Viet Nam	1	6

***Co-citation analysis of graphic design research authors and their research focus***

The co-citation analysis of the 226 documents on graphic design research is presented in Figure 3. The total number of authors was 6391. The minimum citation per author was set at 2 for generating the

posterior network map for author citation. Out of the 6391 authors, only 1105 authors met this criterion. The co-citation analysis is represented in nodes and edges. The nodes are cited authors and sources, while the lines between the nodes are the co-citation relation called edges, and the density of each node is commensurate with the number of citations of an author. The essence of this analysis is to know researchers' influence in graphic design research, which is determined by the number of citations attached to their names, and their research focus, which becomes the intellectual base for other researchers.<sup>26</sup>

The top contributing authors in graphic design research, based on the analysis as shown in Figure 4, were Cross N., Heller S., Van Leeuwen T. and Lupton E., with a threshold citation minimum of 20. Van Leeuwen T. had 46 citations with 1163 link strength, followed by Cross N. with 31 citations with 1171 link strength. Heller S. had 29 citations with 494 link strength, and Lupton E. also had 20 citations with 398 link strength. These authors are therefore shaping the landscape of graphic design research, and the scholars interested in graphic design research should explore their research focus, methodologies, findings and the theories they have advanced or developed.

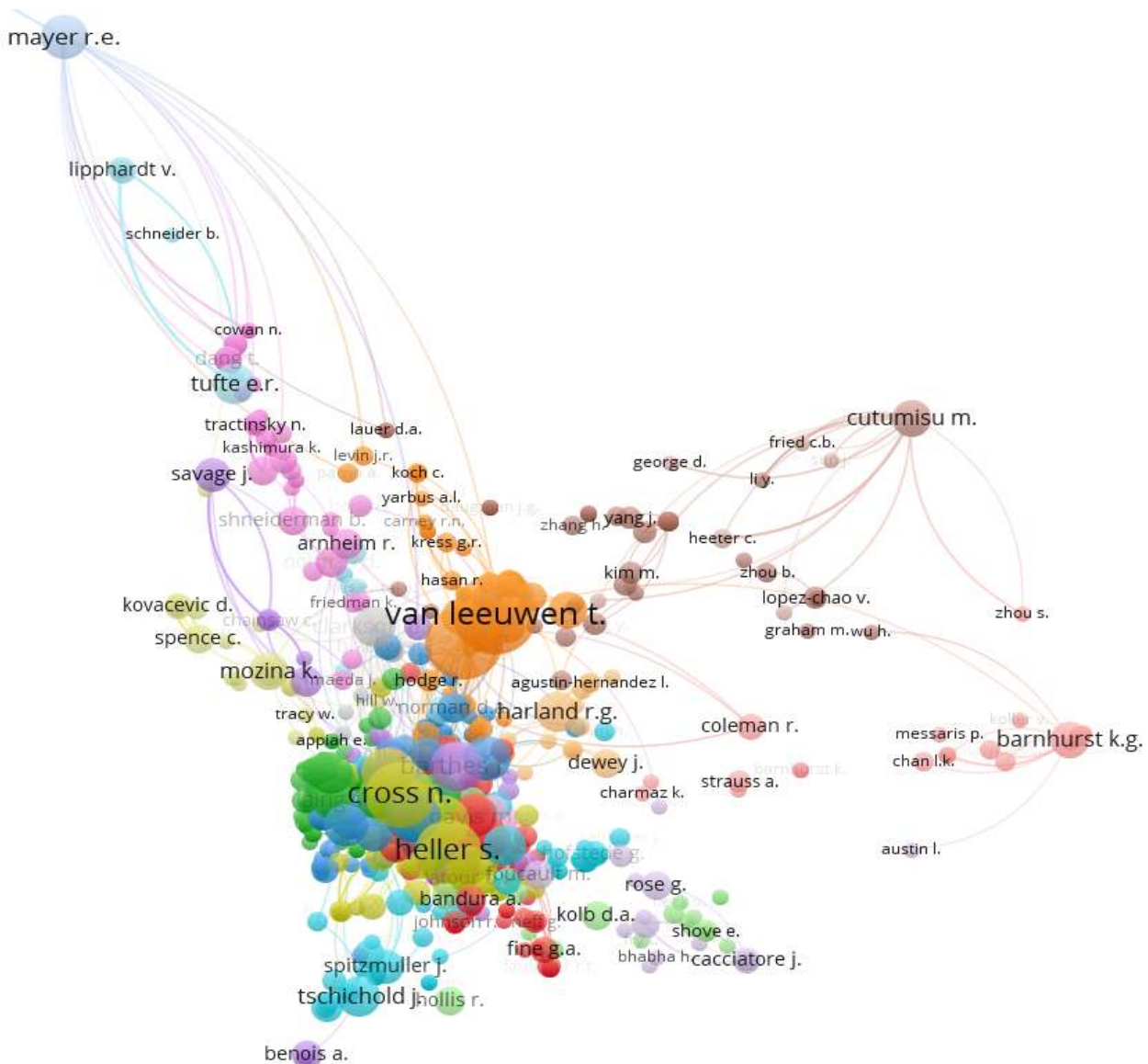


Figure 3: Network map of co-citation analysis of graphic design research authors

<sup>26</sup> Alif Finandhita et al., "VOSviewer Application Analysis: Computational Physical Chemistry Case Study," *Moroccan Journal of Chemistry* 10, no. 1 (2022): J-Chem; Alessandro Concari, Gerjo Kok, and Pim Martens, "Recycling Behaviour: Mapping Knowledge Domain through Bibliometrics and Text Mining," *Journal of Environmental Management* 303 (February 2022): 114160, <https://doi.org/10.1016/j.jenvman.2021.114160>.

The most cited research document of Van Leeuwen is by Kress & Van Leeuwen with the title “*Reading images: The grammar of visual design*” with 22443 citations as of October 2023.<sup>27</sup> This research explores ways in which images communicate meanings in the context of visual literacy for visual communication and provides a toolkit for making meanings from images.<sup>28</sup> The high citation indicates that research in visual communication is more geared towards exploring meaning-making in images, which shows that research in this area is far advanced in semiotics in the context of graphic design from the target audience perspective and serves as a strong ground for researchers interested in building upon for future research.

The next authors with high citations based on the 226 documents analysed were Cross N., Heller S. and Lupton E. Cross N.'s research focus is on ‘designerly’ ways of knowing, with much interest in design methodologies which are situated in design thinking, creativity in design processes, creative cognition in design and analysing design activities from a design perspective. “‘Designerly’ ways of knowing: design discipline versus design science”,<sup>29</sup> is the most referenced article of Cross, N., with 6284 citations as of October 2023. This research shows how design is positioned in science to make design methods rational and objective in solving pressing problems, as advanced in the conference on design methods, held in London in September 1962, to make the design methodology an academic space for inquiry.<sup>30</sup> Design methodology in graphic design or the use of graphic design as a tool for inquiry can be set as a research space for graphic design researchers to advance the discipline in academic fronts based on Cross's research focus, which is driving researchers’ interest. In the case of Heller S, his research focus is on equipping graphic designers. For instance, one of his most cited edited works is “*The Education of a Graphic Designer*”, which has a compelling selection of essays, course syllabi and interviews that are meant to equip teachers and students in the changing landscape of graphic design.<sup>31</sup> Heller has worked on more research that focuses on graphic design and its cultural influences.<sup>32</sup> The research path by Heller, therefore, gives a clear direction towards exploring graphic design education and its relevance to cultural influences.<sup>33</sup>

### ***Advancements in graphic design research based on science mapping of the index-author keywords from 226 documents from Scopus***

Keywords are cardinal in research metrics because they help to identify the active research domain of a field. For this analysis, “co-occurrence was selected for “kind of analysis” and the “unit of analysis” was “index keywords” in the VOSviewer. The minimum number for the occurrence of the keyword was set to 5. Out of the 865 keywords, only 20 MComm. (Communication Design), met the criteria. The results of the analysis show keywords with links that are coloured and clustered into five groups. Graphic design had the highest keyword co-occurrence with the strongest link and was directly linked to layout, typography, semiotics and multimodality as shown in Figure 5 due to the same nodes linking colours to graphic design. Thus, indicating that these are the primary research areas in graphic design, which are of key research interests to graphic design researchers as of now. However, the link from graphic design to the co-occurrence of layout, semiotics and multimodality is weak based on node proximity, showing that these are research areas that should be advanced in the future. Typography with 13 co-occurrences and a link strength of 21, as indicated in Table 2, was closer compared to the others that were directly linked to graphic design, showing that it is part of the dominant research areas.

Other areas that are of interest to researchers that should be advanced due to their link strength to the graphic design node, based on Figure 4 and Table 2, are design education, design process, design, collaborations, design history and design criticism. Medical art and illustration are also researchable areas that graphic designers should pay attention to, as well as photography in the context of visual

<sup>27</sup> Gunther Kress and Theo van Leeuwen, *Reading Images: The grammar of visual design*” (Third edition. | London; New York: Routledge, 2021.: Routledge, 2020), <https://doi.org/10.4324/9781003099857>.

<sup>28</sup> Kress and van Leeuwen, *Reading Images*.

<sup>29</sup> Nigel Cross, “From a Design Science to a Design Discipline: Understanding Designerly Ways of Knowing and Thinking,” in *Design Research Now* (Springer, 2007), 41–54.

<sup>30</sup> Cross, “From a Design Science to a Design Discipline: Understanding Designerly Ways of Knowing and Thinking.”

<sup>31</sup> Steven Heller, *The Education of a Graphic Designer* (Simon and Schuster, 2015).

<sup>32</sup> Heller, *The Education of a Graphic Designer*.

<sup>33</sup> Heller, *The Education of a Graphic Designer*.

communication, though they do not fall strongly within the circle of graphic design, considering their link strength to graphic design, as captured in Figure 5. One outstanding keyword is case study, which is a research approach and based on its occurrence, it is clear that it is one of the common methods used by graphic design researchers quite contrary to Yeo’s assertion that graphic design is occupied by individual methods that are not robust.<sup>34</sup>

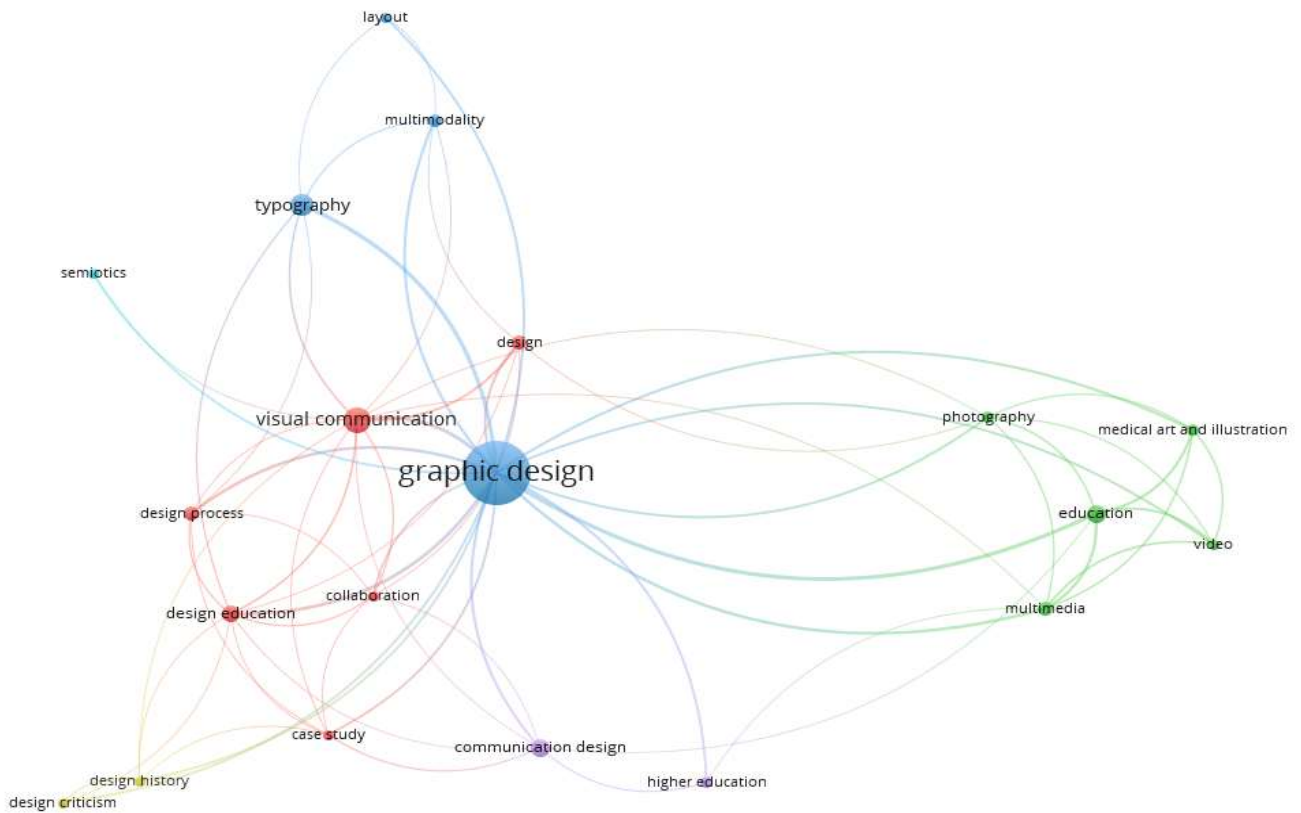


Figure 4: Science mapping of keywords co-occurrence and link strength

Table 2: Keyword co-occurrence and link strength for graphic design related studies

Keyword	Occurrences	Total link strength
Graphic design	177	124
Visual communication	28	32
Education	14	35
Design education	13	23
Typography	13	21
Communication design	15	14
Design	9	14
Design process	9	14
Multimedia	9	26
Multimodality	7	10
Medical art and illustration	6	20
Higher education	6	8
Photography	6	16
Case study	5	11
Collaboration	5	11
Design criticism	5	7

<sup>34</sup> Yeo, “An Overview of Research Methods in Visual Communication Design Education.”

Design history	5	9
Layout	5	7
Semiotics	5	5
Video	5	19

## DISCUSSION

### The Framing of Graphic Design

A review of the 226 abstracts based on the 226 documents selected shows that graphic design research is framed in different ways based on the keyword co-occurrences, which were categorised into five clusters. The first cluster covers graphic design, layout, typography, semiotics and multimodality. Graphic design has an established definition and is advanced by De Rooij et al, who position it as a unique creative practice that utilises images, text and other visual elements that are integrated to convey an intended message with user experience to a target audience.<sup>35</sup>

Graphic design has been the main focus of most visual communication design researchers and has led to the introduction of a term like vernacular graphic design, which is interpreted through hybridity and plurality in design in an attempt to create a relational ontology for its everyday use.<sup>36</sup> Other researchers have conducted various studies on graphic design, among them is Cavanagh, who explored graphic design as a visual appeal tool for conceptual organisation of ideas for other design disciplines like product design.<sup>37</sup> Matthews et al attempted to explore the co-existence of artificial intelligence (AI) in graphic design and the associated threat it poses to the profession.<sup>38</sup> Matthews et al also explored the introduction of AI and ML (machine learning), and noted that they make the future of graphic design uncertain and therefore, for the profession to thrive, design educators must shift their focus to client-designer negotiations, facilitations and design judgment.<sup>39</sup> Gong, on the other hand, in his research, considers graphic design as an emotional tool that evokes positive brand emotions in users to enhance their recognition and trust for the brand.<sup>40</sup> De Rooij et. al. also advance that one area in graphic design that is poorly explored is how intuition supports the creative process; though they attempted to explore it further, their findings still lack clarity, opening room for other researchers to delve into intuition and its role in creativity in graphic design.<sup>41</sup> Another area is visual literacy in graphic design with a focus on words and images as materials with the capacity for expression that facilitates a form of design language.<sup>42</sup> Other emerging research in sustainability looks at challenges to sustainability in graphic design, which explores prepress, press and postpress problems in the context of environmental, social and economic sustainability.<sup>43</sup> The findings on the graphic design research trends show its integral nature in everyday life, which spans communication through being used as an emotional appeal tool for businesses to a material that advances a form of visual expression. Graphic design is, therefore, a cardinal tool for communication with multifaceted purposes.

In the case of layout, Schindler and Muller noted that perceptions about a message are not only shaped by the textual information but also by the layout style.<sup>44</sup> In another research, illustrated

<sup>35</sup> Alwin De Rooij et al., "How Graphic Designers Rely on Intuition as an Ephemeral Facility to Support Their Creative Design Process," *International Journal of Design Creativity and Innovation* 9, no. 4 (2021): 252–68.

<sup>36</sup> Niek Kosten and Liesbeth Huybrechts, "Hypervernacular Design: Rethinking the Vernacular Design Paradigm," *Design Issues* 39, no. 2 (April 1, 2023): 72–85, [https://doi.org/10.1162/desi\\_a\\_00718](https://doi.org/10.1162/desi_a_00718).

<sup>37</sup> Thomas Cavanagh, "Cognitive and Graphic Design Principles for Creating Well-Organized, Visually Appealing Slide Decks," *Business and Professional Communication Quarterly* 86, no. 1 (March 14, 2023): 33–51, <https://doi.org/10.1177/23294906221131988>.

<sup>38</sup> Benjamin Matthews, Barrie Shannon, and Mark Roxburgh, "Destroy All Humans: The Dematerialisation of the Designer in an Age of Automation and Its Impact on Graphic Design—a Literature Review," *International Journal of Art & Design Education* 42, no. 3 (2023): 367–83.

<sup>39</sup> Matthews, Shannon, and Roxburgh, "Destroy All Humans: The Dematerialisation of the Designer in an Age of Automation and Its Impact on Graphic Design—a Literature Review."

<sup>40</sup> Xue Gong, "Enhancing Brand Consistency via Integration of Emotional Graphic Design and Cloud Service Interface System" (Taylor & Francis, 2023).

<sup>41</sup> De Rooij et al., "How Graphic Designers Rely on Intuition as an Ephemeral Facility to Support Their Creative Design Process."

<sup>42</sup> Jenny Grigg, "Materials and Tools as Catalysts of Invention in Graphic Design Ideation," *Design Studies* 70 (September 2020): 100960, <https://doi.org/10.1016/j.destud.2020.100960>.

<sup>43</sup> Ginn Assibey Bonsu, Aletta V. Chisin, and Johannes Cronje, "Cosmopolitan Localism as a Research Framework for Sustainability in Graphic Design Practices," *International Journal of Design Creativity and Innovation* 10, no. 2 (April 3, 2022): 123–40, <https://doi.org/10.1080/21650349.2021.2024092>.

<sup>44</sup> Johanna Schindler and Philipp Müller, "Design Follows Politics? The Visualization of Political Orientation in Newspaper Page Layout,"

publications' layout was rendered in iconography and innovative ways, which enhanced the aesthetic appeal of the visual elements on a page. Layout in graphic design is another facet that enhances effective communication and drives attention, and sustains viewers' interest in a visual statement. Semiotics is another area of research which was trending based on the co-word occurrences in graphic design. De la Cruz and Mejía, advances that though design educators agree that semiotics should be taught to design students, there is a need for more evidence on how it should be integrated into the curriculum.<sup>45</sup> De la Cruz and Mejía, proposes that one approach that can be adopted is a reflective didactic strategy, which, when used on students, increases their awareness of how design artefacts communicate meanings to the audience to bridge the semiotics theory and design practice gap.<sup>46</sup> There is a greater need for research into semiotics to help designers communicate effectively using design elements in the context of visual literacy. In the space of typography, one research explores eroded signage from an anthropological perspective, which gives a narrative account about places and advertised products.<sup>47</sup> In another instance, typeface is assessed for how it is able to influence audience expectations about packaged products and its role in the choice of products.<sup>48</sup> Kovačević et al. discovered that typeface is influential in the context of ingredient depiction on packages and was made possible through typeface legibility.<sup>49</sup> These two research accounts on typography give an indication that more research is needed within this area. For instance, more research can be conducted into different typefaces, assessing their effects on reading experiences in different graphic design products. The role of typeface as a tool for checking the authenticity of packaged products can also be explored, as well as the standardisation of typography in packaging for the export of products.

The second graphic design-related research cluster, based on keyword co-occurrence, which was thematically analysed, was visual communication, design process, collaboration, design, design education and case study. The case study was the only method that was among the themes that emerged as a common research method used in graphic design research-related studies. Visual communication was strongly used in the context of design thinking for different projects for envisioning data, which was explored in diverse fields.<sup>50</sup> Among the fields are broadcasting and digital services, showing that visual communication is a cross-disciplinary tool that aids in backcasting and forecasting for simplifying complex data.<sup>51</sup> Other research also explores the commoditization of culture through visual communication.<sup>52</sup> On other fronts, Matthews et. al. insinuate that there is a paucity of studies on visual communication in the context of AI and ML in design education, making the field poorly prepared in creating paths for future usage of AI and ML in graphic design.<sup>53</sup>

Notwithstanding, visual communication works in collaboration with the design process in the space of co-design, as advanced in the case of Taffe.<sup>54</sup> Thus, in the research by Taffe, visual communication serves as a rich tool for creating a common platform for designers and non-designers to contribute creatively to diagnose and solve problems and suggest proposals for solving a problem.<sup>55</sup> Visual communication is, therefore, a strong tool for graphic designers to unleash their creative potential through

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*Visual Communication* 17, no. 2 (May 12, 2018): 141–61, <https://doi.org/10.1177/1470357217746812>.

<sup>45</sup> L. Arturo de la Cruz and G. Mauricio Mejía, "Reflective Didactic Strategy to Integrate Semiotic Theory and Creative Practice in Graphic Design Education," *Art, Design & Communication in Higher Education* 16, no. 1 (April 1, 2017): 83–97, [https://doi.org/10.1386/adch.16.1.83\\_1](https://doi.org/10.1386/adch.16.1.83_1).

<sup>46</sup> de la Cruz and Mejía, "Reflective Didactic Strategy to Integrate Semiotic Theory and Creative Practice in Graphic Design Education."

<sup>47</sup> David Sinfield, "The Erased Layers of Typography: From the Eroded Palimpsest to Spatio-Temporal Typography," *The International Journal of Visual Design* 10, no. 2 (2016): 15.

<sup>48</sup> Dorotea Kovačević et al., "The Influence of Packaging Visual Design on Consumer Food Product Choices," *Journal of Print and Media Technology Research* 11, no. 1 (2022): 7–18.

<sup>49</sup> Kovačević et al., "The Influence of Packaging Visual Design on Consumer Food Product Choices."

<sup>50</sup> Iain Macdonald, "Window on the Weather: A Case Study in Multi-Platform Visual Communication Design, with a Relationship to Design Thinking," *Visual Communication* 22, no. 2 (May 24, 2023): 365–86, <https://doi.org/10.1177/1470357220948547>.

<sup>51</sup> Macdonald, "Window on the Weather: A Case Study in Multi-Platform Visual Communication Design, with a Relationship to Design Thinking."

<sup>52</sup> Emin Artun Ozguner, "Picturing National History: Turkey's Popular Nationalism on the Rise Through the 1950s New Print Culture," *Journal of Design History* 36, no. 1 (June 3, 2023): 54–72, <https://doi.org/10.1093/jdh/epac057>.

<sup>53</sup> Matthews, Shannon, and Roxburgh, "Destroy All Humans: The Dematerialisation of the Designer in an Age of Automation and Its Impact on Graphic Design—a Literature Review."

<sup>54</sup> Simone Taffe, "Who's in Charge? End-Users Challenge Graphic Designers' Intuition through Visual Verbal Co-Design," *The Design Journal* 20, no. sup1 (2017): S390–400.

<sup>55</sup> Taffe, "Who's in Charge? End-Users Challenge Graphic Designers' Intuition through Visual Verbal Co-Design."

intuition informed by research data. How does intuition create boundless space for graphic designers' creativity, and at what level of the design process is intuition needed for creating visual representations in providing visual communication proposals? These questions are areas for further research in graphic design. In the case of design education in graphic design research, it has been concerned with how to bridge the gap between theories and practice since it is laden with practice-based problem solving.<sup>56</sup>

Nottingham, on the other hand, also argues that since graphic design is practice-based, the makeup of graphic design students in design education is dependent on ontological relations built through physical interactions, which defines the graphic design profession and thus the introduction of online graphic design is weak to create such an interactive space in design education.<sup>57</sup> With the zeal to make graphic design practice theory-driven vein De la Cruz and Mejia attempt to explore how semiotics could be integrated into design education,<sup>58</sup> however, Cabianca advocates that graphic design education can be more successful through the adoption of an architecture education model, which is well established.<sup>59</sup> Graphic design education has therefore been occupied with pedagogies aimed at exploring how to make the design practice theory-driven to establish the discipline academically while still maintaining its practice-based tradition. This implies that more research is to be done to explore diverse pedagogies that can maintain the practice-based tradition of graphic design while still opening the discipline to theories underpinning the practice.

## RECOMMENDATIONS

Reviewers highlighted a critical issue in the way authors frequently conflate the terms graphic design, visual communication, and communication design, using them interchangeably without clarifying their distinct theoretical and practical boundaries. This conceptual overlap complicates efforts to define graphic design as a standalone academic discipline and weakens attempts to establish clear methodological standards. The problem becomes especially pronounced when frameworks from peripheral domains, such as semiotics, are positioned as central to graphic design. While foundational theories like those of Kress and van Leeuwen are useful for discussing visual communication, their relevance to the core of graphic design research remains limited and should be approached with caution.

Additionally, the scientometric analysis, though valuable in mapping dominant themes such as visual communication, typography, layout, and design education, overlooks many key areas of applied graphic design practice. Important topics like pictograms, instructional diagrams, visual identities, packaging labels, apps, and websites were underrepresented or absent altogether. This omission suggests limitations in the keyword framework used for the review and reflects a misalignment between academic categorisation and the real-world scope of graphic design. For example, niche fields such as “pictograms in medical instructions” and “recycling symbols on packaging” each have hundreds of peer-reviewed studies but are not reflected in the data, despite being core to graphic design practice.

Furthermore, the review critiques the assumption that publication quantity directly signals academic legitimacy or disciplinary maturity. While publication is essential for some academics, many graphic design educators are primarily focused on teaching large student cohorts and may not prioritise research output. As a result, an overreliance on publication metrics risks overlooking valuable, practice-based contributions. Reviewers also noted that graphic design research rarely addresses its impact on usability, readability, or behavioural outcomes, key areas that test the effectiveness of design. Case study methodologies dominate the field, while design-led approaches such as co-design, design thinking, and practice-based inquiry remain marginal. Expanding methodological diversity and aligning research more closely with applied contexts would offer a more accurate and holistic picture of graphic design's academic and professional contributions.

<sup>56</sup> Susan Giloi and Dina Zoe Belluigi, “Underlying Knowledge-Knower Structures in Graphic Design: Contributing to Establishing a Cohesive Language for Use in Graphic Design Education,” *Art, Design & Communication in Higher Education* 16, no. 1 (April 1, 2017): 7–22, [https://doi.org/10.1386/adch.16.1.7\\_1](https://doi.org/10.1386/adch.16.1.7_1).

<sup>57</sup> Anitra Nottingham, “Feel the Fear: Learning Graphic Design in Affective Places and Online Spaces,” *International Journal of Art & Design Education* 36, no. 1 (February 24, 2017): 39–49, <https://doi.org/10.1111/jade.12058>.

<sup>58</sup> de la Cruz and Mejía, “Reflective Didactic Strategy to Integrate Semiotic Theory and Creative Practice in Graphic Design Education.”

<sup>59</sup> David Cabianca, “A Case for the Sublime Uselessness of Graphic Design,” *Design and Culture* 8, no. 1 (January 2, 2016): 103–22, <https://doi.org/10.1080/17547075.2016.1142347>.

Significantly, these critiques reveal how the framing of graphic design within Scopus-indexed design journals often fails to reflect the full breadth of the discipline. Topics such as pictograms, labels, diagrams, maps, visual identities, instructions, websites, and digital applications, each representing vital aspects of graphic design, are not advanced by authors in the Scopus Database. Despite the existence of hundreds of peer-reviewed publications in areas like medical pictograms and recycling instructions, these are often excluded as graphic design research themes due to disciplinary boundaries, as well as the focus of journals. This disconnect underscores the limitations of using publication count as the sole indicator of academic progress and calls for a broader, more inclusive framing of graphic design that accounts for its practical, instructional, and digital dimensions.

## CONCLUSION

Graphic design research has often been critiqued for its perceived lack of depth and methodological rigour; however, such critiques largely stem from how the field has been narrowly framed within academic discourse. This study's scientometric analysis reveals that the issue lies less in the absence of research output and more in the conceptual positioning of graphic design within broader fields, such as visual communication and communication design. Out of 883,640 articles identified in the Scopus database, only 263 directly focused on graphic design, suggesting that much research relevant to the discipline is absorbed under adjacent categories. This framing not only distorts perceptions of the field's academic maturity but also conceals the breadth of scholarly engagement occurring across interdisciplinary boundaries.

Further analysis shows that countries like Australia, the United Kingdom, and the United States are leading contributors to graphic design research. However, even within these contexts, the framing of graphic design often aligns with external theoretical lenses such as visual literacy, semiotics, or "designerly" ways of knowing rather than positioning graphic design as a distinct research field. Themes like typography, design education, and visual communication dominate, while critical areas such as sustainability, artificial intelligence, and digital production remain underexplored. Moreover, the overreliance on case study methodologies reflects an interpretive rather than experimental research orientation, calling for broader methodological diversity that includes design-led approaches like co-design, design thinking, and practice-based inquiry.

Insights from the Delphi review further emphasise the need to refine how graphic design is framed. Reviewers noted the problematic conflation of terms such as graphic design, visual communication, and communication design, which obscures their unique theoretical and practical domains. This lack of definitional clarity weakens the foundation for establishing academic research methods within the field. Additionally, while references to semiotics and visual grammar are valuable within visual communication, they may not be central to the core concerns of graphic design. To advance the discipline meaningfully, future research must clearly distinguish graphic design's identity, incorporate a wider range of methodological tools, and engage with emerging areas such as AI, digital design, and sustainability.

The study recommends that researchers undertake studies in underexplored areas such as design intuition, AI/ML integration, sustainability, and semiotic applications in education. Methodological diversity should be encouraged beyond case studies, incorporating experiments, ethnographies, and mixed methods. Academic institutions should align curricula with these trends, explicitly connecting graphic design with related domains, integrating modules on intuition, AI/ML readiness, sustainability, and visual literacy, and promoting research-led pedagogy. Journal editors and database gatekeepers can enhance consistency by refining scope notes and commissioning thematic special issues on emerging topics such as vernacular design or sustainable practices. Collectively, these measures can improve the conceptual clarity, visibility, and practical relevance of graphic design scholarship while preserving its practice-based tradition.

## BIBLIOGRAPHY

Bonsu, Ginn Assibey, Aletia V. Chisin, and Johannes Cronje. "Cosmopolitan Localism as a Research

- Framework for Sustainability in Graphic Design Practices.” *International Journal of Design Creativity and Innovation* 10, no. 2 (April 3, 2022): 123–40. <https://doi.org/10.1080/21650349.2021.2024092>.
- Boone, Ryan, Katia Covarrubias, Benjamin Davis, and Paul Winters. “Cash Transfer Programs and Agricultural Production: The Case of Malawi.” *Agricultural Economics* 44, no. 3 (2013): 365–78.
- Cabianca, David. “A Case for the Sublime Uselessness of Graphic Design.” *Design and Culture* 8, no. 1 (January 2, 2016): 103–22. <https://doi.org/10.1080/17547075.2016.1142347>.
- Camino, Minacha. “An Examination of the Journal Used as a Vehicle to Bring about a Synthesis between Theory and Practice in Art and Design Higher Education.” *Journal of Writing in Creative Practice* 3, no. 3 (December 1, 2010): 317–40. [https://doi.org/10.1386/jwcp.3.3.317\\_1](https://doi.org/10.1386/jwcp.3.3.317_1).
- Caputo, Andrea, and Mariya Kargina. “A User-Friendly Method to Merge Scopus and Web of Science Data during Bibliometric Analysis.” *Journal of Marketing Analytics* 10, no. 1 (March 22, 2022): 82–88. <https://doi.org/10.1057/s41270-021-00142-7>.
- Cavanagh, Thomas. “Cognitive and Graphic Design Principles for Creating Well-Organized, Visually Appealing Slide Decks.” *Business and Professional Communication Quarterly* 86, no. 1 (March 14, 2023): 33–51. <https://doi.org/10.1177/23294906221131988>.
- Clemente, Violeta, Katja Tschimmel, and Fátima Pombo. “A Future Scenario for a Methodological Approach Applied to PhD Design Research. Development of an Analytical Canvas.” *The Design Journal* 20, no. sup1 (July 28, 2017): S792–802. <https://doi.org/10.1080/14606925.2017.1353025>.
- Concari, Alessandro, Gerjo Kok, and Pim Martens. “Recycling Behaviour: Mapping Knowledge Domain through Bibliometrics and Text Mining.” *Journal of Environmental Management* 303 (February 2022): 114160. <https://doi.org/10.1016/j.jenvman.2021.114160>.
- Corazzo, James, Robert George Harland, Alison Honnor, and Steve Rigley. “The Challenges for Graphic Design in Establishing an Academic Research Culture: Lessons from the Research Excellence Framework 2014.” *The Design Journal* 23, no. 1 (January 2, 2020): 7–29. <https://doi.org/10.1080/14606925.2019.1682446>.
- Cross, Nigel. “From a Design Science to a Design Discipline: Understanding Designerly Ways of Knowing and Thinking.” In *Design Research Now*, 41–54. Springer, 2007.
- Finandhita, Alif, Raiswati Unsta Mega, Rizky Jumansyah, Agis Abhi Rafdhi, and Dina Oktafiani. “VOSviewer Application Analysis: Computational Physical Chemistry Case Study.” *Moroccan Journal of Chemistry* 10, no. 1 (2022): J-Chem.
- Findeli, Alain, Denis Brouillet, Sophie Martin, Ch Moineau, and Richard Tarrago. “Research through Design and Transdisciplinarity: A Tentative Contribution to the Methodology of Design Research.” *Focused-Current Design Research Projects and Methods*, 2008, 67–94.
- Giloi, Susan, and Dina Zoe Belluigi. “Underlying Knowledge-Knower Structures in Graphic Design: Contributing to Establishing a Cohesive Language for Use in Graphic Design Education.” *Art, Design & Communication in Higher Education* 16, no. 1 (April 1, 2017): 7–22. [https://doi.org/10.1386/adch.16.1.7\\_1](https://doi.org/10.1386/adch.16.1.7_1).
- Gong, Xue. “Enhancing Brand Consistency via Integration of Emotional Graphic Design and Cloud Service Interface System.” Taylor & Francis, 2023.
- Grigg, Jenny. “Materials and Tools as Catalysts of Invention in Graphic Design Ideation.” *Design Studies* 70 (September 2020): 100960. <https://doi.org/10.1016/j.destud.2020.100960>.
- Harland, Robert, James Corazzo, Ian Gwilt, Alison Honnor, and Steve Rigley. *Graphic Design Research: A Cause for the Concerned*, 2018. <https://doi.org/10.21606/drs.2018.389>.
- Heller, Steven. *The Education of a Graphic Designer*. Simon and Schuster, 2015.
- Kosten, Niek, and Liesbeth Huybrechts. “Hypervernacular Design: Rethinking the Vernacular Design Paradigm.” *Design Issues* 39, no. 2 (April 1, 2023): 72–85. [https://doi.org/10.1162/desi\\_a\\_00718](https://doi.org/10.1162/desi_a_00718).
- Kovačević, Dorotea, Elma Mešić, Julia Užarević, and Maja Brozović. “The Influence of Packaging Visual Design on Consumer Food Product Choices.” *Journal of Print and Media Technology Research* 11, no. 1 (2022): 7–18.
- Kress, Gunther, and Theo van Leeuwen. *Reading Images*. Third edition. | London; New York: Routledge, 2021.: Routledge, 2020. <https://doi.org/10.4324/9781003099857>.
- la Cruz, L. Arturo de, and G. Mauricio Mejía. “Reflective Didactic Strategy to Integrate Semiotic

- Theory and Creative Practice in Graphic Design Education.” *Art, Design & Communication in Higher Education* 16, no. 1 (April 1, 2017): 83–97. [https://doi.org/10.1386/adch.16.1.83\\_1](https://doi.org/10.1386/adch.16.1.83_1).
- Macdonald, Iain. “Window on the Weather: A Case Study in Multi-Platform Visual Communication Design, with a Relationship to Design Thinking.” *Visual Communication* 22, no. 2 (May 24, 2023): 365–86. <https://doi.org/10.1177/1470357220948547>.
- Matthews, Benjamin, Barrie Shannon, and Mark Roxburgh. “Destroy All Humans: The Dematerialisation of the Designer in an Age of Automation and Its Impact on Graphic Design—a Literature Review.” *International Journal of Art & Design Education* 42, no. 3 (2023): 367–83.
- Mingers, John, and Loet Leydesdorff. “A Review of Theory and Practice in Scientometrics.” *European Journal of Operational Research* 246, no. 1 (October 2015): 1–19. <https://doi.org/10.1016/j.ejor.2015.04.002>.
- Nottingham, Anitra. “Feel the Fear: Learning Graphic Design in Affective Places and Online Spaces.” *International Journal of Art & Design Education* 36, no. 1 (February 24, 2017): 39–49. <https://doi.org/10.1111/jade.12058>.
- Ozguner, Emin Artun. “Picturing National History: Turkey’s Popular Nationalism on the Rise Through the 1950s New Print Culture.” *Journal of Design History* 36, no. 1 (June 3, 2023): 54–72. <https://doi.org/10.1093/jdh/epac057>.
- Rooij, Alwin De, Elise Dekker, Karin Slegers, and Michael Mose Biskjaer. “How Graphic Designers Rely on Intuition as an Ephemeral Facility to Support Their Creative Design Process.” *International Journal of Design Creativity and Innovation* 9, no. 4 (2021): 252–68.
- Schindler, Johanna, and Philipp Müller. “Design Follows Politics? The Visualization of Political Orientation in Newspaper Page Layout.” *Visual Communication* 17, no. 2 (May 12, 2018): 141–61. <https://doi.org/10.1177/1470357217746812>.
- Sinfield, David. “The Erased Layers of Typography: From the Eroded Palimpsest to Spatio-Temporal Typography.” *The International Journal of Visual Design* 10, no. 2 (2016): 15.
- Taffe, Simone. “Who’s in Charge? End-Users Challenge Graphic Designers’ Intuition through Visual Verbal Co-Design.” *The Design Journal* 20, no. sup1 (2017): S390–400.
- Walker, Sue. “Research in Graphic Design.” *The Design Journal* 20, no. 5 (September 3, 2017): 549–59. <https://doi.org/10.1080/14606925.2017.1347416>.
- Yeo, Jesvin Puay-Hwa. “An Overview of Research Methods in Visual Communication Design Education.” *International Journal of Design Creativity and Innovation* 2, no. 1 (2014): 51–62.

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