
Analysis of web accessibility skills required in graphic design and visual communication job offers in Spain

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Abstract

Introduction: design has shifted towards addressing social issues such as sustainability and inclusivity, but ensuring accessibility for people with disabilities is also paramount for fulfilling its social function. **Objectives:** This study aims to analyse the demand for digital accessibility skills in job listings related to graphic design and visual communication in Spain. We investigate whether companies are seeking professionals with accessibility skills and how this demand is reflected in job postings. **Methodology:** Job listings on LinkedIn and Domestika related to graphic design, visual communication and web design were analysed between May and June 2023 in Spain. **Results:** Of the 347 job listings collected, only 2.88% required accessibility skills. The lack of interest is more pronounced among design agencies (10%) compared to other companies (90%). **Discussion:** The results show a limited interest in digital accessibility within the business sector dedicated to graphic design and visual communication. The scarcity of demand for accessibility skills contrasts sharply with how these companies portray themselves and the values they espouse, such as inclusivity, equal opportunities and non-discrimination. **Conclusions:** It is crucial to emphasize the need to raise awareness of the importance of involving professionals with knowledge of accessibility in the graphic design and visual communication professions. The companies in this sector must reconsider the focus of their activities in order to integrate accessibility requirements steadfastly and definitively into the products they create, as their communicative mission hinges entirely upon it.

Keywords

Web accessibility, Graphic design, Visual communication, Professional skills, Labour market

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1. Introduction

In recent years, the field of design, along with its practitioners and companies, has been actively engaged in addressing social issues such as sustainability, environmentalism and inclusivity [1, 2, 3]. This trend, pioneered by various authors [4, 5, 6], emphasizes a social perspective on the role of design. In earlier discussions, Simon [7] argued that the design profession endeavours to reshape reality through its actions, focusing not only on enhancing existing structures but also on integrating them into social life to imbue human relations with meaning. Gaitto [8] further traces the origins of design to society, highlighting that its production is oriented and directed towards societal needs. Additionally, Belluccia [9] underscores that while design contributes to improving living conditions and can promote progress and socially beneficial values, it lacks inherent ends or goals, requiring activation by a customer—whether society, an individual or a company. In a similar vein, Chaves [10] contends that everything produced by design serves a social function to the extent that it is directed towards society, provided that customers are committed to it. However, the author suggests that this commitment is marginal and asserts that design can only truly fulfil its social function if its professionals actively support movements advocating for a more sustainable, equitable and just society.

There is no doubt that, for design to effectively fulfil this social role, the products, services and messages it creates must be accessible. This will ensure that everyone, irrespective of their disability, can access them on equal terms.

2. Theoretical framework

2.1. Accessibility, design and related disciplines

A pivotal moment in the relationship between design and accessibility can be traced to the emergence of the concept of universal design (UD). Coined by Mace [11], UD was initially associated with architecture and industrial design but evolved to encompass the idea of designing all types of products to meet the needs of individuals, irrespective of their age, ability or social status. Also known as design for accessibility, transgenerational design, design for all and inclusive design, UD aspires to incorporate disability into a comprehensive understanding of design. It focuses on the need for designs that can be used by all, eliminating the requirement for adaptations or specific designs [12] for groups with particular needs. This approach helps to prevent segregation and potential stigmatization of these individuals.

On the contrary, some authors argue that effectively addressing the specific accessibility issues of a particular group requires a focused approach, dealing only with the problems relevant to that group [13]. This perspective emphasizes the need for tailor-made solutions, as accessibility often requires a case-by-case approach [14]. Similarly, Henry, Abou-Zahra, and Brewer [15] advocate against broadening the definition of accessibility beyond disabilities. They express concern that doing so risks diluting attention to the specific needs of these individuals. The authors also argue that such an approach encourages further research and development focused on the unique needs and solutions tailored to specific groups.

For the World Wide Web Consortium (W3C), the leading international organization for the promotion and development of standards in this area, the concept of web accessibility implies that websites, and the tools and technologies that support them, should be designed and developed in such a way that people with disabilities can use them. Specifically, it refers to five processes that every individual should be able to perform when accessing a website's content: perceiving, understanding, navigating, interacting and contributing [16].

The ISO 9241-171:2008 standard defines accessibility as “the usability of a product, service, environment or facility by people with the widest range of capabilities”. This definition extends beyond people with disabilities and is oriented towards usability, aiming to ensure that these creations and

developments achieve the highest levels of effectiveness, efficiency and satisfaction. This definition reflects the coexistence of accessibility and usability concepts with shared objectives. Some professionals in the sector even characterize accessibility as “usability for people with disabilities” or “usable accessibility” [17].

The relationship between these two disciplines is evident and has been discussed extensively, although a complete consensus on their common ground and how to address potential overlaps has yet to be reached. For instance, Shneiderman [18] proposes an expanded concept of usability that integrates specific requirements arising from situations of disability, which he calls “universal usability”. Conversely, some authors argue that accessibility and usability issues are different, each being experienced by people with and without disabilities, respectively [19].

Thatcher et al. [20] argue that accessibility problems, although hindering access for a specific user group, should be viewed as a distinct type of usability issue. Nielsen [21] perceives accessibility as a technical requirement for a product to be usable, emphasizing that a specific user group requires designs with certain characteristics in order to use those products effectively. In this context, accessibility is considered a prerequisite for usability. Finally, some authors acknowledge the intersections between the two disciplines but also advocate for their complementary nature [17].

Both accessibility and usability fall within the domain of human-computer interaction (HCI), as defined by Hewett and Baecker [22], which is the “discipline concerned with the design, evaluation and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them”. HCI involves a diverse range of professionals from various fields, including computer science, design and psychology.

The term user experience (UX) gained popularity through the work of Norman et al. [23]. While it initially referred to the affective and emotional aspects of product use, it has evolved into a catch-all term commonly used for various aspects, primarily related to usability. It also encompasses elements from other disciplines such as information architecture and interface design (UI). According to Norman and Nielsen [24], UX “encompasses all aspects of the end-user’s interaction with the company, its services, and its products”. Therefore, disciplines such as usability, accessibility and graphic design are properties or characteristics that can positively or negatively impact UX, as it encompasses all these issues.

In recent years, several authors have advocated for increased integration of accessibility into UX design, aiming for “genuinely inclusive high-quality digital experiences for everyone, regardless of disability or age” [46]. This has led to the emergence of a new term: accessible user experience (AUX) [47], which is progressively being incorporated into the methodologies of diverse research projects [48, 49].

2.2. Legal framework

The international standard for web accessibility is the Web Content Accessibility Guidelines (WCAG) [25]. Numerous governments, including those of the European Union, Argentina, Australia, Canada, India, Israel, Japan and the United States, have adopted WCAG as a legal requirement for website accessibility. It is mandatory for the websites of public bodies and certain private companies with special social relevance to comply with these accessibility obligations.

At the European level, recent developments in this regard include the integration of accessibility requirements through the EN 301 549 standard (2014), subsequently updated in 2015 (EN 301 549 v1.1.2) and 2018 (EN 301 549 v2.1.2) [26]. These updates were made to clarify compliance with Directive (EU) 2016/2102 of the European Parliament and of the Council of Europe on the accessibility of websites and mobile applications of public sector bodies.

In Spain, the incorporation of these standards into the legal framework occurred through Royal Decree 1112/2018, which focuses on the accessibility of public sector websites and mobile applications. The corresponding regulatory adaptation took the form of the standard UNE-EN 301549:2019, further updated in 2020 (UNE-EN 301549:2020) and 2022 (UNE-EN 301549:2022) [27].

At both legislative and societal levels, the current situation appears favourable for the integration of accessibility across all productive sectors of society. Notably, the field of design, as shown above, stands out as being particularly conscientious in recognizing and addressing this challenge.

2.3. Digital accessibility and technology sectors

The aforementioned legal requirements regarding accessibility have compelled companies to either integrate or subcontract the services of individuals or companies specialized in this field. This is essential to comply with current legislation governing the design of their products or the provision of their services. However, not all sectors and companies, especially those not associated with public administration, show the desired level of interest in accessibility. This is illustrated by the fact that less than 10% of European websites are currently accessible [28].

In fact, a significant part of the business sector considers the effort involved in integrating accessibility into their daily practice to be disproportionate [29], while others recognize that they only address it as a legal imperative [30]. Thus, in sectors such as IT, studies like the one published by Martin et al. [31] show the low interest of software development companies in technical skills related to web accessibility, with only 31.85% of the job offers analysed in their research including specific skills related to this matter.

The business reality according to several authors [32, 33, 34] is that many companies and organizations consider accessibility as an add-on to the products or services they design or offer, and only when it is necessary, e.g. when it is a requirement in public administration specifications. This type of approach most often means redesigning or reprogramming parts of the product when it is already in production, generating unforeseen costs that could have been avoided by integrating these requirements from the beginning of the project, in the concept and design phases. In this sense, the strictly evaluative approach of the WCAG [35] and related national standards does not facilitate their integration into the design and development process of technological products.

Myths and preconceived ideas, such as the belief that accessibility benefits only a small percentage of the population, that incorporating certain requirements will compromise the aesthetics of the product, or that it is an issue that should be solely the concern of IT developers [36, 37], often arise from a limited understanding of accessibility and its advantages. These misconceptions lead to the promotion and prioritization of other requirements over the inclusion of people with disabilities [38]. Similarly, in the survey of web designers and developers conducted by Vollenwyder et al. [39], respondents identified the developer profile as the primary responsible party for considering accessibility-related requirements. This disregards profiles related to design, as well as other roles with a less technical focus, as indicated in previous studies [40].

2.4. Graphic design and web accessibility

The formal elements and visual components of an interface serve not only an aesthetic purpose, but more importantly, function as elements with which individuals interact to perform various processes and tasks while navigating a website. Designing these elements and components involves transforming data into meaningful information [41], creating documents that are understandable and easy to use, translating messages into concrete actions through natural and pleasant interactions, and facilitating users' understanding of their location and available navigation options [42], among other actions. All this is achieved without neglecting the aesthetic aspect of the final product. In essence, Frascara [43] assigns information design the responsibility of creating media that facilitate interaction, perform actions and meet people's needs, considering them as the central and guiding focus of its work.

At the same time, the aesthetic function of graphic design, an aspect that has not received significant attention in human-computer interaction research [44], plays a crucial role in creating interfaces and products that enhance the overall UX. This contribution extends to heightened user satisfaction and enjoyment while interacting with these interfaces.

Alcaraz and Massaguer [45] highlight the importance of the graphic designer's profile in the creation of accessible websites, stressing that this profile is as important as others related to the technical development of these digital resources. The results of their study show that more than 50% of the WCAG 2.1 conformity criteria grouped under three of its four theoretical principles (perceptible, operable and understandable) have the graphic designer as one of the leading professional profiles, actively participating in up to 54% of the conformity criteria (level AA) required by the standards to which public administrations using the W3C guidelines are subject.

Nevertheless, there has been no comprehensive analysis of the digital accessibility landscape of companies and studios specializing in the professional practice of graphic design and visual communication. To address this gap in the literature, our research aims to analyse the specific digital accessibility skills that graphic design and visual communication companies explicitly seek in their new hires. This analysis aims to determine whether there is a demand for knowledge related to this discipline within the productive sector or whether, on the contrary, it is other knowledge, practices and disciplines such as usability or UX that are emphasized.

3. Methodology

A thorough analysis was conducted on job offers posted on LinkedIn and Domestika, using specific keywords such as graphic design/designer, visual communication, web design/designer, UX design/designer, user experience design/designer, UI design/designer, interface design/designer, and front-end design/designer. Data collection took place from 1 May to 30 June 2023 and focused exclusively on vacancies published for Spain on both platforms.

After consolidating both sources to eliminate potential duplicates, the authors manually analysed the content of the job offers to identify skills, knowledge or abilities related to web accessibility. Other skills, knowledge and abilities not traditionally associated with the graphic design profession were also noted in order to identify industry trends.

Once the data had been collected, items that were listed under different names but referred to the same concept were grouped together. Finally, the frequency of occurrence of each item and the corresponding percentages in relation to the total number of analysed offers were calculated.

Information was also collected on the city where the job was offered, the name and type of company (design/communication or other non-design specific), and the approximate number of employees (where available). Companies were categorized into four groups according to size: micro (up to 10 employees), small (up to 49 employees), medium-sized (up to 249 employees) and large (250 employees or more). The analysed dataset extracted from the offers is available online.¹

4. Results

A total of 347 job offers were posted by 309 different companies. A significant majority (304, 88%) of the companies seeking profiles with these characteristics are from non-design sectors. These include establishments such as restaurants, nightclubs, supermarkets, toy shops, consultancies and telecommunications companies. In contrast, only 12% (43) of the companies are design or communication firms. Regarding the number of employees, the 222 companies that provided information on their approximate workforce in their offers are distributed as follows: 30 micro-companies (8.65%), 50 small companies (14.41%), 54 medium-sized companies (15.56%) and 88 large companies (25.36%).

Only 2.88% (10) of the analysed job offers contain references to skills or technical knowledge associated with accessibility or design for disabilities (Table 1). Notably, none of the offers explicitly mention knowledge of the Web Content Accessibility Guidelines (WCAG), the leading international standard

¹ https://www.ub.edu/adaptabit/accessibilitat-disseny-grafic/datos_ofertas_trabajo.xlsx

for web accessibility, or any other national or European standard derived from or related to these guidelines.

Table 1. Specifics of Job Offers Seeking Accessibility Skills

ID	Job position	Keywords	Quote (translation from Spanish)
D20230623-07	Senior UX designer	Accessibility	“You will play a key role in enhancing customer satisfaction by focusing on improved usability, accessibility, and delivering distinctive user experiences.”
D20230511-04	Senior UX/UI designer	Accessibility	“Conduct a comprehensive analysis of websites and apps, evaluating factors such as usability, accessibility and business model.”
L20230623-03	Senior graphic designer	Accessibility	“[The company] was founded with the primary goal of establishing safer, accessible and fraud-free digital processes.”
D20230510-03	Design system designer	Accessibility	“Necessary skills: [...] accessibility knowledge”
D20230608-04	Digital designer	Accessibility	“Proficient in HTML, CSS and JS with demonstrated experience in ensuring design accessibility and adaptability across various devices and browsers.”
L20230505-11	Product designer (UX/UI) – Electronic banking	Accessibility	“Ensure designs are responsive and accessible on different devices and platforms.”
L20230602-04	Web layout designer	Accessibility	“Interface accessibility testing and adaptation. At least two years’ experience in web design and creativity, applying accessibility criteria. Multiplatform design and application layout service. At least two years’ experience in interface accessibility testing and adaptation.”
L20230531-02	Web layout designer	Accessibility	“Interface accessibility testing and adaptation, with the following skills: [...] Six years’ experience in web design and creativity, applying accessibility criteria; [...] Six years’ experience in interface accessibility testing and adaptation.”
L20230603-01	Senior product designer	Accessibility	“You must be passionate about the member experience and fluent in design principles, UX best practices and accessibility, working with data and insights to inform design decisions, facilitating cross-team collaboration with product managers and developers, and collaborating with the User Research team to conduct studies at optimized times in the product cycle.”
L20230621-02	Web and user experience designer – specialized in marketplaces	Accessibility, Disability	“Ensure the accessibility and usability of the platform for a wide range of users, including those with disabilities.”

Interest in accessibility skills is notably lower among design companies (10%), with only one out of ten offers explicitly referring to such skills. Most of the offers that did mention accessibility (90%) were from companies not exclusively focused on providing design or communication services.

The proportion of job offers that emphasize accessibility skills is fairly uniform across different company sizes: medium-sized (20%), large (10%), small (10%) and micro (10%). The remaining 50% did not specify the number of employees.

Other disciplines, techniques and methods related to digital accessibility are more prevalent in a larger number of job offers. Specifically, 35.16% (122 offers) are associated with UX, 26.8% (93 offers) with user-centered techniques, including 4.03% (14 offers) that specify user testing, and 9.51% (33 offers)

with usability. Furthermore, 8.07% (28 offers) and 0.58% (2 offers) mention diversity and social engagement, respectively, although it remains unclear whether specific web accessibility skills are required. Finally, 4.9% (17 offers) address the issue of sustainability.

5. Discussion and limitations

The number of job offers analysed may not be sufficient to generalize the results to the entire professional design sector, especially considering that a significant proportion of professionals in Spain are self-employed and are therefore not included in this analysis. Nonetheless, this study provides some initial insights and points to a widespread lack of awareness of digital accessibility in companies looking to employ these professionals.

The results of this research are in line with previous studies [39, 40] which have found that less emphasis is placed on digital accessibility when it comes to profiles that are less connected to technological development. These findings highlight a lack of interest on the part of both design firms and companies seeking to recruit design professionals in the skills, knowledge and abilities that these individuals can bring to the table in terms of accessibility.

This is in stark contrast to the educational landscape, where disciplines such as human-computer interaction, user experience, interaction design, usability and accessibility have been integrated into the curricula of computer science, communication and design courses [50]. This integration spans different levels of education, including bachelor's and master's degrees, and encompasses the entire array of techniques and methods specific to these fields, none of which were explicitly required in the analysed job offers.

In 35 of the job offers, aspects such as respect for diversity, inclusion and equal opportunities are mentioned as part of the company's values. However, in these cases, these aspects are not reflected in the specific knowledge required of candidates. Instead, they appear to be statements of intent, which we recognize could be perceived as a form of virtue signalling or a trend. Examples of such statements include, "we are committed to equal opportunities" (L20230503-05) and "we believe that everyone is unique and different, and we are therefore committed to an inclusive culture that recognizes and values diversity" (L20230615-03).

We identified 12 cases where the emphasis is on diversity and non-discrimination in the recruitment process (3.46% of the total) and 18 cases related to the work environment (5.19% of the total). Examples include statements such as "we are strongly committed to equality and inclusivity, ensuring that all applications received are treated fairly" (L20230513-06) and "[...] committed to conducting selection processes without discrimination based on various factors, ensuring respect for human rights" (L20230609-03). With regard to the work environment, statements such as "we celebrate diversity and difference, and are firmly committed to building an inclusive workplace for all our team" (L20230508-06) and "we believe in an inclusive culture that recognizes and values diversity" (L20230615-03) were also noted.

In three cases, the offer explicitly stated that a disability certificate was an advantage (L20230627-02, D20230523-04, L20230508-01). The fact that these same offers did not require any knowledge of accessibility suggests that the emphasis may be on seeking tax benefits through such recruitment rather than a genuine commitment to integrating people with disabilities into the labour market.

6. Conclusions

Given the importance of graphic design in the creation of accessible digital products and services, the limited interest shown by employers in this research helps in part to understand the factors behind the low percentage of accessible websites identified by the European Commission at European level. This is particularly relevant for the state of websites on the European continent.

Undoubtedly, one of the main strategies to promote the integration of accessibility within technical teams and design departments and companies is to raise awareness and understanding of the barriers

that arise in this area when the characteristics, needs and preferences of different disability profiles are not taken into account. Increasing understanding of the benefits of designing and developing accessible products can also play a pivotal role in encouraging more companies to include professionals with these skills in their teams.

Design professionals need to recognize the vital role they play in the development of accessible products, as this responsibility is shared with other stakeholders, including those with more technological profiles.

As a primary avenue for future work, it is imperative to gain insight into how design professionals perceive accessibility and integrate it into their daily practices, and to assess the extent to which these perceptions align with the findings of this study. Additionally, more in-depth research is needed to understand how educational institutions address the issue of accessibility in their curricula.

Graphic design and visual communication companies need to pivot their focus towards steadfastly and conclusively incorporating elements that ensure the accessibility of their products and services for people with disabilities, as their communicative mission hinges entirely upon it. Extending the purpose beyond mere aesthetics not only benefits people with disabilities, but also enhances the experience of all users. It is certainly an economic and legal consideration, but it is also a service towards achieving a fairer and more equitable society.

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