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RESPONSIVE WEB DESIGN AND BRAND RECOGNITION IN A LOGISTICS COMPANY, 2024.

Diseño responsivo web y reconocimiento de marca en una empresa logística, 2024.

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ABSTRACT

This research aims to determine the relationship between Responsive Web Design (RWD) and brand recognition of a logistics company. It is concluded that this design adapts the web structure and its elements to the screen of each device to offer an excellent visual aspect, speed, and functionality, generating an optimal experience for the user. From this, the brand is identified among its competitors. The association of flexible grid layout, fluid images, media queries, brand attachment, online presence, and customer feedback is also examined. The results are discussed.

PALABRAS CLAVE

Diseño Responsive Web
Red flexible
Imagen flexible
Brand recognition
Recuerdo asistido
Empresa logística

RESUMEN

Esta investigación tiene por propósito determinar la relación del Diseño Responsivo Web (RWD) y el reconocimiento de marca de una empresa logística. Se concluye que este diseño adapta la estructura web y sus elementos a la pantalla de cada dispositivo, para ofrecer un excelente aspecto visual, rapidez y funcionalidad; generando una óptima experiencia para el usuario. A partir del cual la marca sea identificada entre sus competidores. También se examina la asociación de flexible grid layout, fluid images, media queries, con el apego a la marca, presencia en línea y retroalimentación a los clientes. Los resultados se discuten.

1. Introduction

Today we access the internet from all kinds of devices, which requires our searches to be fast and to adapt to different screen sizes and resolutions. This has created a need to adapt the web browsing experience to these devices and to meet requirements of speed, functionality and design. Responsive Web Design (RWD) adapts the structure of a website and all its elements to the screen of each device to offer an excellent visual appearance, a good user experience and high functionality, on the basis of which a company or product can be identified and remembered positively by its audience. Brand recognition, for its part, is defined as the consumer's ability to identify a brand from certain visual or auditory elements, such as the logo, colors or slogan, without needing to recall it in full.

RWD has demonstrated its importance worldwide by improving the user experience and strengthening brand recognition. In Europe, studies show that web design has evolved from simple HTML pages to responsive sites, integrating interactivity and aesthetics to optimize navigation (Santamaría, 2020). In Spain, studies of financial institutions show a predominance of legible, modern and simple symbols on their websites to reinforce their visual identity (Sanz et al., 2020; Suárez, 2023). Likewise, brand loyalty is emotional and linked to credibility, which reinforces customer satisfaction and the consistency of corporate identity (Ugalde et al., 2018). Another study notes that the development of responsive design has transformed digital marketing, allowing companies to remain competitive in a dynamic environment. These improvements have been key to optimizing the user experience, especially on mobile devices (Membiela & Pedreira, 2019). In Portugal, meanwhile, a study conducted in a web developers' forum focused on improving the user experience (Monteiro, 2017).

In Asia, research from Indonesia predominates; there, responsive applications have been implemented to improve entertainment services, hotel e-commerce and food products (Rameshwar, 2024; Devi et al., 2021; Rifqy et al., 2022; Agustian, 2023). In China, adaptive websites built with Photoshop (PS) software stand out for their harmonious design and colors, improving the browsing experience and brand recognition (Yao, 2024). In South Korea, RWD strengthens brand recognition by guaranteeing consistent experiences, improving trust and professional perception (Chun, Lee & Park, 2020).

In Latin America, the impact of RWD varies by region. Studies in different countries have analyzed how the implementation of responsive design influences corporate identity, digital advertising and education in virtual environments. In some cases, a lack of planning affects public perceptions of brands, while in others web design has facilitated access to learning platforms adapted to mobile devices (Cazañas & Parra, 2017; Cornejo et al., 2019; Peralta, 2023). Finally, in Peru, web design continues to face challenges, as many companies prioritize sales over brand building, which can undermine credibility and generate negative experiences. This highlights the need for a more strategic implementation of RWD to improve brand perception and user satisfaction in the market (Rengifo & Ramírez, 2022).

One of the fundamental characteristics of RWD is its focus on adaptability, which eliminates the need to develop separate versions for each device (Do Carmo et al., 2019; Posada et al., 2024; Laine et al., 2021). This principle not only simplifies website maintenance but also ensures a consistent user experience, which is crucial for strengthening brand recognition. Adaptive web pages convey a professional and modern image, fostering user trust in and loyalty to the brand (Suárez et al., 2020; Zouhaier et al., 2023; Sanz et al., 2023; Kamal & Abdullahi, 2023). In addition, RWD relies on standard web technologies such as HTML5, CSS3 and JavaScript, which make it possible to create scalable interfaces that are compatible with different platforms (Sanz et al., 2023; Madjarov, 2016). These technologies ensure that developers can implement advanced solutions without compromising accessibility or aesthetics.

The impact of RWD on accessibility is significant, as it seeks to make content perceivable and operable for all users, including those with disabilities (Do Carmo et al., 2019; Moreno et al., 2023; Zouhaier et al., 2023; Sandnes, 2024). In particular, for blind people who use screen readers, it is

essential that information be presented sequentially and with clear context. This includes the use of concise titles and precise descriptions to ensure that content is properly understood. Content reflow, a key component of RWD, reorganizes text to fit the screen size, improving both legibility and ergonomics on touch devices (Huang et al., 2024; Parlakkiliç, 2022; Suárez et al., 2020; Walsh et al., 2017). Research also indicates that the adaptation tools used in RWD benefit users with different levels of digital literacy, enabling intuitive and smooth navigation.

The use of RWD has become widespread in web development owing to its ability to deliver a coherent and efficient user experience. Its application in digital marketing is particularly relevant, as it not only improves search engine rankings but also ensures that visual identity elements such as logos and icons are reproducible, simple and adaptable (Suárez et al., 2020; Laine et al., 2021; Sanz et al., 2023; Zhang, 2024). This helps consolidate a uniform and recognizable brand identity across all devices. In addition, RWD makes it possible to optimize page loading speed, ensuring smooth transitions between layouts for different screen sizes (Walsh et al., 2020; Posada et al., 2024). This translates into greater user retention and a more satisfying overall experience, both essential factors in a competitive environment such as the digital one.

Trends in adaptive web design point to a growing focus on usability, accessibility and the implementation of advanced technologies such as artificial intelligence (AI) and machine learning (ML) (Posada et al., 2024; Huang et al., 2024; Kamal & Abdullahi, 2023). These techniques are used to improve the adaptability of systems and optimize user interaction in environments such as online learning platforms. For example, AI makes it possible to personalize content according to user preferences, while ML helps predict specific navigation needs. Minimalist design has also gained popularity, prioritizing the elimination of unnecessary visual elements and presenting only essential information (Do Carmo et al., 2019; Parlakkiliç, 2022; Laine et al., 2021). However, such deep navigation structures can pose a challenge for users with disabilities, so it is essential to strike a balance between simplicity and functionality (Moreno et al., 2023; Zouhaier et al., 2023; Sandnes, 2024).

Research has explored various aspects of RWD, including its impact on user experience, accessibility and task performance. Studies have shown that responsive websites outperform non-responsive ones in terms of ease of use and user satisfaction (Huang et al., 2024; Laine et al., 2021; Walsh et al., 2020). Inclusive design models have also been developed, such as Responsive Inclusive Design (RiD), which incorporate specific principles for creating accessible applications and involve users from the earliest stages of development (Moreno et al., 2023; Do Carmo et al., 2019; Casalánguida & Durán, 2015). RiD proposes collaboration between developers and accessibility experts to ensure effective results.

Despite its benefits, RWD faces technical limitations, such as uneven compatibility across browsers or devices and the challenges of adapting complex multimedia content (Madjarov, 2016; Laine et al., 2021; Sandnes, 2024). It has also been observed that adapting highly detailed content, such as interactive graphics or complex data, may require additional solutions, such as scalable SVG formats or the use of XML to organize information hierarchically (L'Yi & Gehlenborg, 2023). Nevertheless, its application remains an essential practice for ensuring an effective and accessible digital presence. The main difficulties of responsive web design (RWD) relate to compatibility with older browsers, which can affect how sites are displayed on devices with outdated software (Monteiro, 2017; Almeida, 2017). In addition, longer loading times and difficulties in optimizing the user experience remain recurring challenges in its implementation (Rameshwar et al., 2024; Almeida, 2017). It has also been found that perceptions of these limitations vary with developers' experience, differing between seasoned professionals and freelance developers (Almeida, 2017). Finally, when RWD is integrated with technologies such as augmented reality, additional problems may arise, such as incompatibility with certain devices, network delays and variations in image loading speed (Rameshwar et al., 2024).

2. Theoretical Framework

2.1 Responsive Web Design (RWD)

Responsive web design is an approach in which the behavior, structure and development of a site are adapted to the environment, the screen size and the orientation of the devices used (Knight, 2011). Ethan Marcotte coined the term and notes that responsive design was introduced recently and has become so popular that the number of websites adopting it has increased considerably.

RWD is a widely used approach that enables developers to create websites capable of providing an optimal user experience regardless of the limitations of each device, including screen size (Walsh et al., 2020). Today, both techniques are used with the aim of offering the best user experience (UX), ensuring the accessibility and functionality of the website regardless of the device from which it is accessed (Sanz Peralta et al., 2023).

Responsive design is a web design approach whose goal is to develop sites that offer an optimal viewing experience. This approach facilitates reading and navigation with a minimum of resizing, scrolling and rearrangement of content, allowing it to adapt correctly to a wide variety of devices, from mobile phones to desktop computer monitors. Responsive design also ensures that all relevant information is presented legibly to the user on any type of platform, taking into account variations in screen size (Do Carmo Nogueira et al., 2018).

In advertising, the idea of a flexible and responsive logo has been put forward, in which elements are simplified without losing their personality, so that the brand remains identifiable across different environments and devices (Sanz et al., 2023). Given that two screens of the same size may have different pixel densities, static measurements can become unreliable. To address this problem in responsive design, fluid grids, flexible images and CSS media queries are combined, allowing dynamic adaptation to different screen resolutions (Gillenwater, 2010).

RWD offers several advantages: it provides a better user experience thanks to its fluid nature; it improves SEO rankings, supporting sales actions; it helps reduce the bounce rate, that is, the abandonment of a website after the first visit; it increases designers' productivity by giving them greater creative freedom; and it promotes the creation of accessible sites, achieving greater reach. However, the RWD environment also has disadvantages. It presents some implementation difficulties in highly complex projects, so the following drawbacks must be taken into account: content mismatches can impair user interaction; loading times increase owing to the diversity of components; some queries are problematic, especially for people with little command of this environment; and there are versioning issues and a lack of robustness in older browser versions (Almeida & Monteiro, 2017).

2.1.1 Components of Responsive Web Design

RWD comprises key elements, most notably the flexible grid, fluid images, media queries, adaptive typography and responsive email (Cazañas & Parra, 2017). Grids are responsible for assigning relative units to page elements; flexible images are also sized in these units; and media queries make it possible to switch between different CSS rules depending on the characteristics of the device (Marcotte, 2011).

A. Flexible grid layout

In the early days, most websites were designed with a fixed width and centered content that fitted a specific screen size, with no possibility of resizing. Today, by contrast, widths calculated in percentages are preferred to fixed pixels, as these measurements make the grid flexible.

This option uses percentage values adjusted to the browser window, while the minimum width is kept in fixed pixels, ensuring that content is correctly aligned in the fluid grid. The maximum width is defined in typography-based units, preventing content from expanding or contracting excessively at varying screen resolutions (Harb, 2022).

B. Fluid images

Fluid images face challenges related to data flow on small screens, their low resolution and the distribution of space on high-resolution devices (Gillenwater, 2010). The solution is to adjust their attributes by resizing width and height, thereby avoiding the use of fixed pixels and reducing loading time.

Optimization techniques are also used, including CSS cropping, which sets images as main elements and adjusts their dimensions dynamically, and Rutter's max-width attribute, which links the image to a parent element with a width set to 100% while maintaining its original dimensions. In addition, the use of multiple images, implemented through HTML5, CSS3 and media queries, makes it possible to load specific icons for different screen resolutions, ensuring proper display on each device.

C. Media queries

Through this component, creators can produce various formats in HTML and serve style sheets selectively according to characteristics such as browser window size, orientation, resolution or color. Media queries allow these web elements to be positioned dynamically, facilitating their adaptation to screen dimensions and optimizing the user experience on different devices. The parameters queried include screen dimensions (width and height), device orientation and color characteristics (Harb et al., 2011).

At a technical level, queries include the media type, which specifies whether the screen is the target device; the range query, which defines breakpoints such as 480 px to apply different CSS styles; and style adjustment features, whose purpose is to improve the presentation of content according to the characteristics of the device (Knight, 2011).

D. Adaptive typography and responsive email systems

Responsive typography is applied through two main approaches: using relative units (em) and defining minimum and maximum widths. Both make it possible to define measurements within the CSS files for each screen size, ensuring correct legibility and optimal display on different output devices. Responsive emails, for their part, must be accessible on all systems and screen sizes, whether on a desktop computer, a *tablet* or a mobile phone. On small screens, text may shrink until it becomes almost illegible, which affects its structure and forces users to scroll more than necessary, resulting in an unsatisfactory experience (Gillenwater, 2010).

2.2 Brand recognition

Recognition is an essential component of brand awareness. It refers to the consumer's ability to identify a brand after having been exposed to it, even without needing to recall its name (Keller, 1993). This factor is especially relevant in saturated markets, where a distinctive and well-structured message can improve recall of a product or service (Aaker, 1991). It is also part of brand awareness and is referred to as aided recall (Aaker, 1994).

Awareness and recognition are closely related, as both components are fundamental to building a strong brand. Whereas the former, made up of recognition itself and recall, encompasses the consumer's overall perception, the latter focuses on identifying the brand in a given context. The main difference between the two concepts lies in their scope: awareness implies a deeper level of connection with the consumer, while recognition often identifies the product visually or aurally (Keller, 1993).

The main purpose of marketing actions is to generate value in a product or service. In this process, the brand is initially unknown, and recognition occurs when it is identified among others in the same category. Brand recall, in turn, represents the final stage, referring to the ability to evoke the brand in the consumer's memory (Aaker, 1991). A recognized brand influences potential customers' decision-making, since a high level of recognition increases the likelihood that it will become a strong option (Keller & Machado, 2006). Familiarity with the brand triggers the impulse

to buy (Veloso, 2012; Aaker, 1991; Keller, 1998). A brand without recognition is unlikely to succeed, because it is an empty brand that is not close to its target audience (Kapferer, 1995).

2.2.1 Components of brand recognition

A. Brand attachment

Attachment is defined as a specific bond between a person and a particular object, which varies in strength (Bowlby, 1980). The notion of emotional connection comes from psychology, based on the relationship between a newborn and its mother or caregiver (Bowlby, 1982). This emotional bond links a brand to a person, reflecting a mental state in which the brand is perceived as an extension of the self (Park et al., 2008). Brand loyalty has been considered the main dimension of brand equity and has been defined as the attachment a customer feels toward the brand (Aaker, 1991).

B. Online presence

The expansion of virtual environments has become a major challenge for brands, but at the same time it represents an important arena for business success (Kapferer, 2012). For this reason, organizations' actions in this sphere must be effective and adapt to new behaviors (Aaker, 2018). Accordingly, companies with a significant online presence enhance their brand equity because they offer alternatives and new experiences to their target audience (Capriotti et al., 2019; Edelman, 2010).

Brand presence is realized through identity (Baños & Rodríguez, 2012), which is expressed on the website—generally the first point of interaction with the consumer. The actions undertaken there are fundamental for differentiation and for achieving a strong digital presence (Chaffey & Ellis-Chadwick, 2019). Design must therefore communicate the value proposition effectively (Wheeler, 2018).

C. Customer feedback

Social platforms and online portals provide opportunities to receive feedback; when properly managed, this information helps improve brand image, which in turn leads to building trust with customers (Selman, 2017). In this sense, online channels must clearly convey the value proposition (Hofstad, 2015). Through them, buyers form perceptions of a product's displayed attributes, establishing a positive representation of the brand. This idea influences consumers' attitudes through a constant feedback loop (Lamb, 1998). In this process, it is essential to check whether customers understand the messages being disseminated (Dalton et al., 2016). This makes it possible to establish a bond, understanding their preferences and interests, in order to make the necessary adjustments (Kotler, 2014).

Depending on the interaction rate and the number of potential customers, a positive feedback mechanism is established that progressively leads to the arrival of new customers, a fraction of whom may become loyal (Aaker, 1991). This is achieved through effective self-assessment by the company (Rivas & Grande, 2013), informed by consumers' comments on their experience with the product or service (Wiggins, 1993). In short, feedback is also key to achieving satisfaction, which in turn fosters loyalty.

2.3 Objectives

The objectives of this research are set out below:

2.3.1 General objective

The general objective is to determine the relationship between adaptive web design and brand recognition at the company Bryce Logistic in 2024.

2.3.2 Specific objectives

- To determine the relationship between adaptive web design and brand attachment at Bryce Logistic, 2024.

- To examine the relationship between adaptive web design and online presence at Bryce Logistic, 2024.

- To establish the relationship between adaptive web design and customer feedback at Bryce Logistic, 2024.

3. Methodology

This study adopts a quantitative research approach, using the systematic collection and analysis of data to answer research questions and test previously proposed assumptions (Hernández-Sampieri et al., 2018). A non-experimental, cross-sectional design was implemented, as the variables were measured within a single year (Kerlinger & Lee, 2002). The study is correlational, since it makes it possible to analyze the connection between variables in a specific context without directly manipulating experimental conditions (Ñaupas et al., 2018). The data collection technique was a structured questionnaire following the methodological guidelines of Bartlett et al. (2001); the technique is systematic and allows variables and indicators to be organized. The resulting instrument was a survey, which made it possible to collect data from Bryce Logistic's customers through 12 items per questionnaire, using a 5-point Likert scale to capture nuances in participants' responses.

The sample comprised a total of 150 customers of Bryce Logistic, selected through non-probability convenience sampling. The inclusion criteria were: frequent users of the website, and customers who had viewed the web design and had contracted the company's services. The reliability of the instrument was measured using Cronbach's alpha (α) coefficient to assess the homogeneity and consistency of responses, yielding values of .801 for the adaptive web design construct and .872 for brand recognition, indicating adequate internal consistency (Hair et al., 2014). Data were processed using SPSS statistical software, version 29. Descriptive and inferential statistics were used to analyze the nominal variables. The analysis included tabulating the results and applying statistical tests to assess the relationship between the variables studied (Hernández-Sampieri et al., 2018).

4. Results

The results obtained include the following:

Table 1. Relationship between responsive web design and brand recognition at Bryce Logistic, 2024.

Spearman's Rho	Responsive Web Design		Responsive Web Design	Brand recognition
		Correlation coefficient	1000	0.697
		Sig. (2-tailed)		<0.001
		N	150	
	Brand recognition	Correlation coefficient	0.697	1000
		Sig. (2-tailed)		<0.001
		N	150	

Source: Authors' own elaboration, 2024.

The results reveal a significance level of p = 0.01 < 0.05; the null hypothesis is therefore rejected and the alternative hypothesis accepted. This finding establishes a significant relationship between responsive web design and brand recognition at Bryce Logistic, 2024, with a 95% confidence level and a moderate positive correlation of 0.697 between the variables studied.

Table 2. Relationship between responsive web design and brand attachment at Bryce Logistic, 2024

Spearman's Rho	Responsive Web Design		Responsive Web Design	Brand attachment
		Correlation coefficient	1000	0.566
		Sig. (2-tailed)		<0.001
		N	150	
	Brand attachment	Correlation coefficient	0.566	1000
		Sig. (2-tailed)		<0.001
		N	150	

Source: Authors' own elaboration, 2024.

The statistical analysis shows a significant relationship (p = 0.01 < 0.05); the null hypothesis is therefore rejected and the alternative hypothesis accepted. That is, Bryce Logistic's responsive web design is related to the brand attachment dimension, with a 95% confidence level and a correlation of 0.566, indicating a moderate positive association.

Table 3. Relationship between responsive web design and online presence at Bryce Logistic, 2024

Spearman's Rho	Responsive Web Design		Responsive Web Design	Online presence
		Correlation coefficient	1000	0.695
		Sig. (2-tailed)		<0.001
		N	150	
	Online presence	Correlation coefficient	0.695	1000
		Sig. (2-tailed)		<0.001
		N	150	

Source: Authors' own elaboration, 2024.

The statistical analysis revealed a significant relationship (p = 0.01 < 0.05); the null hypothesis is therefore rejected and the alternative hypothesis accepted. That is, Bryce Logistic's responsive web design is related to the online presence dimension, with a 95% confidence level and a correlation of 0.695, indicating a moderate positive association between these two constructs.

Table 4. Relationship between responsive web design and customer feedback at Bryce Logistic, 2024

Spearman's Rho	Responsive Web Design		Responsive Web Design	Customer feedback
		Correlation coefficient	1000	0.481

		Sig. (2-tailed)		<0.001
		N	150	
	Customer feedback	Correlation coefficient	0.481	1000
		Sig. (2-tailed)		<0.001
		N	150	

Source: Authors' own elaboration, 2024.

The statistical analysis showed a significant relationship (p = 0.01 < 0.05); the null hypothesis is therefore rejected and the alternative hypothesis accepted. That is, Bryce Logistic's responsive web design is related to the customer feedback dimension, with a 95% confidence level and a correlation of 0.481, denoting a moderate positive correlation.

5. Discussion

5.1 Discussion of the general objective

The main objective of the study was to examine the relationship between adaptive web design and brand awareness at Bryce Logistic. The results show a moderate positive correlation (0.697) between these two variables. This moderate result is consistent with the studies of Huang et al. (2024) and Laine et al. (2021), who note that responsive websites outperform non-responsive ones in terms of ease of use and user satisfaction, leading to an optimal experience and, ultimately, to a brand standing out from others in a saturated market.

To this end, it is suggested that websites be based on fluid grids rather than traditional rigid structures (Harb, 2022). One suggestion is the implementation of mobile learning, regarded as a solution for web adaptation in settings with technological limitations, such as lack of internet access, or on devices with small screens (Cazañas & Parra, 2017). It is also advisable to overcome flow problems arising from the different dimensions and resolutions of playback devices and to optimize loading times, especially for complex images. These improvements have been key to optimizing the user experience, especially on mobile devices (Membiela & Pedreira, 2019). On this basis, emerging experiences can make an impact in saturated markets, where messages stand out in a distinctive and structured manner (Aaker, 1991).

5.2 Discussion of the specific objectives

With regard to the first specific objective, to determine the relationship between responsive web design and brand attachment at Bryce Logistic, the results show a moderate positive association (0.566) between the constructs. This figure is consistent with Park et al. (2010), who note that the experience provided by a brand is directly linked to the consumer's self, generating a significant affective connection that is evident in customers' attitudes, such as brand advocacy, which is characteristic of attachment. Kotler et al. (2014) emphasize that a brand has an impact when it responds to users' interests, also generating customer loyalty (Aaker, 1991). Accordingly, the design that strengthens this bond is one that displays harmony and visual balance in its colors (Yao, 2024). It should also be borne in mind that adapting detailed content, such as interactive graphics or complex data, may require additional solutions, such as scalable SVG formats or the use of XML to organize information hierarchically (L'Yi & Gehlenborg, 2023).

As regards the second specific objective, to examine the relationship between responsive web design and online presence at Bryce Logistic, the analysis revealed a moderate positive association (0.695) between the variables. This result is consistent with the study by Sanz et al. (2023), who state that an omnichannel approach in organizations requires adaptive techniques such as responsive web design, whose usability and accessibility features are necessary for a digital brand presence. This makes it possible to achieve a significant impact on customers' memory, maintaining aided awareness (Aaker, 1994). Likewise, Wheeler (2018) emphasizes the need for optimal design

to communicate the value proposition effectively. Authors such as Capriotti et al. (2019) and Edelman (2010) also note that visibility and accessibility are fundamental elements for enhancing brand equity and user experiences. Kamal and Abdullahi (2023), for their part, emphasize the importance of customer interaction for success in virtual environments. Aaker (2018) adds to this by pointing to the need to adapt to new digital behaviors, while Kapferer (2012) highlights engagement in these environments. As for quality content, Chaffey and Ellis-Chadwick (2019) stress its importance as a differentiating factor. Chun et al. (2020) explore this further, linking content quality with brand recognition and consumers' ability to identify valuable products. The relevance of consistent and adaptive experiences through responsive web design becomes evident in this context.

With regard to the third specific objective, to examine the relationship between responsive web design and customer feedback at Bryce Logistic, the statistical analysis showed a moderate positive association of 0.48. Although moderate, this result indicates a lower degree of correlation than those of the other dimensions. Accordingly, it is recommended that feedback mechanisms be strengthened by taking advantage of the benefits of responsive technologies. Technical limitations should also be avoided, such as uneven compatibility across browsers or devices and the challenges of adapting complex multimedia content (Madjarov, 2016; Laine et al., 2021; Sandnes, 2024), which may be the reasons why the exchange of messages is hindered. Similarly, Rivas and Grande (2013) argue that, to be successful, a brand must assess itself and receive customer *feedback* on the product, on the basis of which improvements are made (Wiggins, 1993). This leads to the achievement of the goals set out in the strategies (Dalton et al., 2016). Properly managed social platforms establish a strong bond by detecting preferences and interests and addressing expectations and wishes, to which strategies must be adjusted (Kotler et al., 2014). This results in user satisfaction and builds trust (Chun et al., 2020), strengthening relationships in order to convey the value proposition effectively (Hofstad, 2015).

6. Conclusions

In summary, in line with the general objective, it was determined that Responsive Web Design (RWD) is significantly related to brand recognition at Bryce Logistic, with a moderate positive association. This demonstrates the acceptance of this emerging technology, which enables the brand to be identified against its competitors. With regard to the specific objectives, the relationship between responsive web design and the dimensions of brand attachment, online presence and customer feedback was determined. All three correlations reached a moderate positive level, with the third dimension showing the lowest level. It is suggested that this stems from equipment difficulties in adopting responsive technology. It is therefore advisable to plan the implementation of flexible devices to provide better interaction with customers, leading to stronger recall and, in the long run, a stronger brand.

Among the main limitations identified in the literature review and in the course of the research is the lack of studies in sectors other than technology; it is therefore recommended that sectors such as hospitality, SMEs and public bodies be studied. Geographically, several regions are absent, so continental studies, as well as studies by *clusters* or business and demographic networks, are proposed. Further research is needed on the components of brand recognition, as well as their importance and applications, and on distinguishing brand recognition from other factors, as it is often confused with other drivers of brand behavior.

Finally, there are limitations related to the research approach: although most studies adopt a quantitative approach, it would be advisable to conduct qualitative studies or, alternatively, to complement them with mixed-methods research in order to generalize and interpret the findings. Samples are also biased toward easily accessible populations, with the use of non-probability convenience sampling restricting the scope of the research.

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