EXPLORING THE CULTURAL SIGNIFICANCE OF E-COMMERCE WEBSITES THROUGH SEMIOTIC ANALYSIS: A LITERATURE REVIEW

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ABSTRACT

Semiotic analysis serves as a tool for comprehending the ways in which individuals interpret and comprehend their surroundings by scrutinizing the interplay between signs, symbols, and their connotations. The efficacy of digital business platforms is heavily reliant on the creation of well-crafted, meticulously structured websites that facilitate effective communication with targeted customers. E-commerce websites extensively employ images and texts to enhance product awareness and cultural significance. Scholars contend that the utilization of e-commerce websites will expand if designers integrate the cultural norms of different user subsets. Thus, this study aimed to examine this issue through a literature review of semiotic analysis applied to e-commerce websites.

KEYWORDS

Semiotic analysis, Website design, E-commerce, Culture, Literature review.

1. INTRODUCTION

E-business has been an effective tool for businesses to communicate with their customers and create new markets, leading to sustainable economic growth [1]. In 2021, e-commerce retail sales exceeded USD5 trillion, with projections of significant growth in the coming years [2]. From a semiotic perspective, cross-cultural differences between various regions on the world are evident, making it crucial to investigate the cultural differences that influence e-commerce websites to accelerate e-commerce progress [3].

Culture is a powerful phenomenon that includes norms, values, and actions and is critical to developing consumer subjectivity. Researchers have examined the contributions of Hofstede's cultural dimensions, which differentiate among cultural systems, norms, and values [4]. Cultural awareness and sensitivity have also been emphasized to evaluate a given society's adaptability to technology [5], [6]. Recent studies have provided empirical evidence regarding the significant impact of cultural design features such as layout, images, language, and color on users' acceptance of mobile health applications [6]. Furthermore, the adoption of products or marketing tactics is influenced by cultural factors [7]. Therefore, cultural differences need to be understood to avoid failures resulting from a lack of cultural understanding.

According to Pelet et al. [8], semiotic representations, such as images, words, gestures, colors, sounds, or objects, are commonly used to convey meaning. Semiotics has various applications in

the real world, particularly in e-business and marketing, where it can be utilized to create and communicate meaning and influence people's responses [8], [9]. The coordination of verbal and visual features in semiotics has been found to enhance communication effectiveness [8]-[11].

As e-commerce continues to expand, recognizing cultural differences is essential for effective communication in the digital realm. However, the current literature lacks comprehensive reviews of semiotic analysis of e-commerce, especially in an international context. This research aims to fill this gap by providing a foundation for further study and highlighting the need for future research that consider diverse cultural and situational contexts to enable business owners to address cultural impacts effectively.

2. LITERATURE REVIEW

2.1. Culture Theories

Culture can be defined as a collection of beliefs and values that shape the behaviors and attitudes of individuals and groups, and is acquired through learning and sharing within a particular social group [12]. Scholars from sociology and anthropology such as Hall [13], Hofstede [14] and Schwartz [15] have studied culture to understand its emergence and evolution, as well as its various behavioral norms across societies. However, measuring cultural notions directly presents a challenge for researchers [4]. Despite this, some scholars have attempted to conceptualize and operationalize culture, with Hofstede's [14] model of culture gaining the most recognition. Hofstede [14] proposed five cultural dimensions: power distance, uncertainty avoidance, individualism/collectivism, masculinity/femininity, and long-/short-term orientation, which are used to study cultural differences and their impact on behaviors, attitudes, and actions of individuals and groups. Hofstede's model emphasizes that culture is a consolidation of specific behavior patterns influenced by beliefs and behaviors, and that cultural values are acquired early in life. Hofstede's dimensions reflect the dominant value systems in different countries, and the model is extensively used to study the behaviors and attitudes of people living in different countries.

Hofstede's model is a crucial factor in cross-cultural website development as it presents the essential dimensions of cross-cultural website design that have been analyzed and evaluated by different researchers and theorists [4]. By understanding cultural dimensions, web developers can gain insights into cultural preferences and values. Regarding power distance, it is important to focus on sharing information related to organization and administration hierarchy, while collective culture emphasizes the development and promotion of localized content and consideration of public opinion when developing websites [7]. In terms of uncertainty avoidance, web developers must be cautious about the information shared on the website, while in long-term oriented cultures, web designers and developers must focus on the availability of search engines and the history of websites [16]. Faisal et al. [17] highlighted the crucial role of understanding interpersonal communication in developing knowledge about intercultural communication. The theory of intercultural communication presents a framework based on different dimensions that vary across cultures.

Culture has various influences on business activities and processes, and marketers must focus on cultural differences and values while developing and proposing marketing and advertising strategies and tactics. Moreover, culture has a strong impact on internal and external communication [18]. Therefore, web developers and designers must consider cultural dimensions when developing a cross-cultural website design [5].

2.2. Culture and E-commerce

The investigation of cultural differences in Information and Communication Technology (ICT) has been a focus of many scholars, with a significant amount of research examining the adaptability of technology and the influence of cultural differences on web communication. However, few studies have focused on e-business websites in a cross-cultural setting while conducting a semiotic analysis. According to Palla and Zotos [19], many organizations use websites as their primary means of communication for various purposes such as information, entertainment, and business. Culturally specific websites can facilitate better interactions with visitors and add value to a website [20]. Moreover, website design and culture are strongly connected [21].

Well-designed websites are a major source of communication, allowing companies to share relevant information with users [22]. Publicly listed companies share annual reports, financial performance, preferences, and investments through news and press releases on their websites, which can be easily accessed by any visitor to acquire critical information [23]. Shareholders and stakeholders can extract useful information from such websites [18]. High-quality websites can also increase users' participation and engagement [24].

E-commerce websites are established with a focus on local culture, with the information, language, values, and messages rendered through these websites mainly managed using the cultural framework [25]. By using local culture, e-commerce websites can influence the local market and attract customers from local markets [23]. However, organizations must carefully assess the cultural factors of a country when designing their websites, particularly for cross-cultural e-commerce websites [7]. The overall culture to which the organization belongs must also be considered when building websites [26].

Studies have examined how different cultures affect people's online shopping habits, with cultural norms constituting collectivistic values and risk avoidance acting as additional barriers to consumer engagement in online shopping [27]. In the Arab world, the cultural values of collectivism and masculinity have a strong favorable effect on the adoption of social commerce websites [28]. Cultural factors can significantly affect consumers' decisions to purchase a product, highlighting the importance of examining cultural influence on customers' perceptions [29]. Moreover, understanding the role that culture plays in designing user interfaces, such as e-commerce websites, is crucial since users from diverse cultural backgrounds and with varying interface design preferences tend to process different acceptance criteria [6], [30].

2.3. Previous Research on Semiotic Analysis

Semiotics, which originates from the Greek term semeion meaning sign, is concerned with the study of social and cultural phenomena through signs. Signs consist of two components, the signifier and the signified, where the former is the visual, auditory, or linguistic representation, and the latter is the concept or meaning conveyed [31]. The process of semiotics involves perception, manipulation, and consumption of signs, where individuals become aware of signs, interpret them, and respond accordingly [8]. Semiotics has various applications, particularly in marketing and user interface (UI) design, where it can be utilized to develop and communicate meaning to affect people's responses [8], [31].

In recent years, there have been numerous studies that examine the interaction between verbal and visual features in semiotics with respect to label design, the impact of the semiotic characteristics of online news headlines on consumer behavioral intentions, and the interpretation of advertisement meanings. Additionally, semiotic approaches have been applied to UI design

and usability evaluation. Designers can employ semiotics to enhance the communication power of UI by blending several signs to convey the required meaning to the user. Furthermore, semiotic engineering analyzes the connections among system signs, semantics, and functionalities to comprehend the meta-communication between designers and users [6], [26], [32]-[34].

For instance, Sagot et al. [26] introduced a semiotic approach to help designers integrate the culturalization process in product and website design. They emphasized the significance of integrating information through the design of interfaces that are adaptable to various cultures and linking and combining the technical attributes of websites with cultural dimensions. Similarly, Alsswey et al. [34] developed a mobile app UI that reflects standard icons in the Arab world, and they investigated the impact of screen, learning, application features, and terminologies on older adults' overall satisfaction with the mobile application's UI. They also examined the UI design of a mobile application based on Arabic culture and found a significant correlation between culture-based language, colors, layout, and images and users' intentions to use the culture-based mobile application interface. Moreover, de Souza et al. [32] proposed a theory of semiotic engineering that analyzes the connections among system signs, semantics, and functionalities to comprehend the meta-communication between designers and users.

3. CONCLUSIONS

Numerous studies have demonstrated that cross-cultural factors must be considered in the evaluation of web design, messaging, and e-commerce transactions [26]. A culturally adaptive UI has been shown to significantly enhance users' experience [6], [35]. Culturally adaptive websites allow for quick browsing, minimal mouse clicks, and fewer errors [26]. Cultural models influence website design in unique ways, with each cultural dimension shaping it individually. Consequently, organizations and designers should focus on establishing online relationships and the practical usefulness of websites [23]. Several studies have emphasized the significance of cultural awareness in understanding the user's adoption of technology [36], [37]. Nonetheless, little research has been conducted on identifying the cross-cultural differences and influences in a suggested manner.

In addition, our comprehensive review of the literature reveals that semiotic approaches have been extensively studied in various fields, including UI design and usability evaluation, product label design, the interpretation of advertisement meanings, the semiotic characteristics of online news, and the computer-assisted culturalization process of product website design. However, there has been a lack of attention to the cross-cultural comparative semiotic analysis of e-commerce websites.

Drawing on the preceding discussion, several potential avenues for future research can be proposed in the context of cross-cultural considerations in e-commerce websites

1. Conducting a comparative semiotic analysis of e-commerce websites across cultures: As mentioned, there is a gap in the literature when it comes to cross-cultural comparative semiotic analysis of e-commerce websites. Future research could explore how different cultures interpret and respond to the semiotic elements of e-commerce websites, such as icons, color schemes, and visual metaphors.
2. Investigating the impact of cultural dimensions on e-commerce website design: Research has shown that different cultural dimensions (e.g., individualism vs. collectivism, high vs. low uncertainty avoidance) can shape web design. Future research could examine how specific cultural dimensions influence the design of e-commerce websites, and how these design elements affect user experience and behavior.

3. Exploring the role of cultural adaptation in e-commerce website design: The existing literature suggests that culturally adaptive websites can significantly enhance user experience. Future research could investigate different approaches to cultural adaptation in e-commerce website design, and how these approaches affect user experience and behavior.

4. Examining the relationship between cultural awareness and user adoption of e-commerce technology: The literature suggests that cultural awareness is important for understanding how users adopt technology. Future research could explore how cultural awareness influences user adoption of e-commerce technology, and how e-commerce companies can improve their understanding of cultural differences to better serve diverse user populations.

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