

## Research Article

# Localization Quality Assessment for More Reliable E-Commerce Applications in Arabic

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E-commerce software and applications are mainly designed to let business go globally with less cost and higher accessibility. The localization of such software and websites into several languages is intended for reaching the largest number of consumers through minimizing the impact of linguistic, cultural, and technical barriers. Such barriers are assumed to affect the quality of localization and accordingly the reliability of the e-commerce software of website. In exploring the persistent problems influencing localization quality in the Saudi context, this study sought to analyze consumers' perceptions and attitudes regarding the Arabic version of Saudi Amazon (Arabic Amazon.sa) in respect of accessibility, readability, understandability, and translatability issues. Toward this overarching objective, two main research instruments have been used: an online survey covering diverse localization problems and a zoom-based open discussion with the website's users to collect some concrete examples of the problems influencing the localization quality and website's reliability. The findings showed that although localization adopts a functional approach to translation for the sake of reaching a large number of consumers, most of the users of the Arabic version of Amazon.sa developed a negative attitude. Such a negative attitude evolved owing to some salient problems that negatively affected the quality of localization and the reliability of website. Although website's localizers managed to adapt the English version both technically and culturally, some other linguistically oriented problems prevailed including partial translations, vague and misleading translations of promotional texts, inconsistent translation of headings, the foreignization of the website's settings, the absence of text boundaries, and the occasional mismatches between the website's English and the Arabic versions.

## 1. Introduction

Digitalism has become a life style more than a trendy practice as it has changed all aspects of life, especially businesses. Indeed, the recent years have witnessed unprecedented developments in cloud computing technologies, which have been clearly reflected on the emergence of electronic commerce (henceforth referred to as e-commerce) [1, 2]. Put simply, e-commerce refers to any form of business transaction for trading goods, services, and information conducted via the

Internet, mobile phones, or any other network. It covers diverse relations such as business-business, business-consumer, consumer-consumer, and consumer-business. Not surprisingly, thousands of e-commerce software and websites have been developed so that users can buy and sell products and services with no reach limitations [3, 4]. Such software and websites help to reduce costs and risks, expand businesses, and offer more marketing opportunities.

In Saudi Arabia, e-commerce has gained great economic importance due to its economic benefits at the micro- and

macrolevels [5]. According to the e-commerce Index 2020 generated by the United Nations Conference on Trade and Development (UNCTAD), Saudi Arabia ranked the 11<sup>th</sup> within the G20 countries and the 49<sup>th</sup> globally. The index ranks 152 countries based on their ability to access secure Internet servers, reliability of postal services and infrastructure, and the proportion of their population using the Internet and having an account with a financial institution or mobile money service provider. Accordingly, the advanced rank of Saudi Arabia can be attributed to the improved Internet infrastructure, which received huge investments over the recent years with more than 95% of the population using the Internet, according to January 2021 internal statistics [6, 7].

In the domain of e-commerce, Gross [8] affirms that “A website is a company’s business card and flagship in the cyberspace, which can be viewed by practically everybody at any time around the world” (p. 7). Therefore, different websites and applications including Haraj (<https://haraj.com.sa/>), Noon (<https://www.noon.com/saudi-en/p-21064/>), and Souq, which was replaced by Amazon in 2020 (<https://www.amazon.sa/-/en/>), have been developed in Saudi Arabia [9]. These websites are usually designed in a way that attracts customers regardless of their linguistic differences. In other words, they are usually released in different languages in order to address the linguistic needs of all users and customers. Customers are likely to buy services and products if the information of commercial websites is offered in their language.

In response to the increasing importance of e-commerce in the economies of the Arab countries, a plethora of studies have been conducted with the purpose of exploring the potentials and opportunities of e-commerce as well as addressing its challenges and limitations [10–12]. One of the direct strategies to reach larger audience is localization. Gross [8] defines localization as “the modification of the entire content of the website: all visual and audiovisual elements that surround the text on a website” (p. 8). However, the process of localization is not always easy, especially in Arabic. Indeed, despite the importance of localization as a critical success factor for the successful performance and reliability of e-commerce software and websites, studies exploring the quality of the localization process in Arabic and its impact on the reliability of such software and websites are relatively scarce [14, 15]. In the Arab world, localization is considered a major obstacle to the success of e-commerce trade in the Arab world as it is considered an important factor restricting e-commerce activities all over the Arab countries including Saudi Arabia.

In light of this argument, this study seeks to explore the impact of localization quality on the reliability of e-commerce applications and websites taking the Arabic version of Amazon in Saudi Arabia (henceforth, Amazon.sa), a rebranding of Souq.com, as a case study. This endeavor is based on a close investigation of some of the persistent problems in localizing the website most of which are related to the main sections, customer services, hyperlinks, and even the descriptions of the items on sale. Toward this overarching objective, a survey is firstly conducted in order to

explore the users’ perceptions and attitudes toward the accessibility and reliability of the Arabic version of Amazon. Then, an open discussion is organized and held with Amazon.sa users to receive concrete examples of the problems they used to encounter while navigating the localized version of the website. In so doing, the outcomes of this study would help those in charge of localizing worldwide and constantly improving websites in Saudi Arabia to revisit current practices that might affect the reliability of e-commerce websites. This endeavor would support the initiative taken by Saudi government to diverse economy making use of the Saudi technological prowess.

The rest of the article is structured as follows. Part 2 reviews related literature on the localization of e-commerce software and websites highlighting the gap to be filled. Part 3 offers an outline of the theoretical underpinnings of the current research in terms of the Arabic version of Amazon.sa and the process of localization as well as the localization systems of e-commerce software and websites with a focus on the Arabic localization systems and problems. Part 4 describes the research methodology in terms of the research design, instrument, and procedure of analysis. Part 5 reports on the findings of the study. Part 6 summarizes the main findings of offers avenues for further research.

## 2. Literature Review

Owing to the fact that the Arabic content on the web is disproportionately small compared to other languages, notable scholarly attention has been paid to such issue with various studies approaching it from diverse perspectives. Part of the issue is ascribed to the dearth of research in the area of localization in general and in Arabic in particular due to complex relation between translation, commerce, and technology. Much of the available literature addressed the problems of the localization of video games [16–19], social networks [20], and open-source software [21].

Relatedly, in the domain of businesses worldwide, trustworthy e-commerce websites are principally issued in English and localized to other languages. Although many studies addressed the problems of websites’ localization [22–24], little effort has been exerted toward the localization of such websites, especially into Arabic [8, 25, 26]. Given the focus of the current article on Saudi Amazon—and to our best knowledge—scarce studies addressed users’ attitudes toward the Arabic localized version of Amazon.sa.

Omar [26] argues that the literature of localization shows a number of studies that have been created to deal with the quality of localization. In particular, this has been developed in languages including Chinese, Russian, and Spanish. The quality of localization is on constant development by international corporations which use translation, quality assurance, testing, and project management to meet the international standards of website or software localization. Likewise, Omar [26] further indicates that localization is a requirement for successful businesses and the quality of the localized products is the key to establishing a career in the industry at hand.

In fact, different studies have been conducted to approach the topic of localization quality. For example, Jimenez-Crespo [22] says that localization quality should focus on consistency and precision in both the source and the target languages. Lobanov [27] believes that localization quality means that the localized product should reflect the original in terms of language, idea, cultural nuances, and accessibility. In other words, localization quality is deemed accurate when the target products are mirrors to the source once and the target audience finds those localized products easy to use and the language is easy to understand. Omar [26] states that there are three essential elements that localization quality concern itself with. These are the “language translation or linguistic properties, the transition of the product, and the outcome of the product” (p. 44).

Particularly in the Middle East, Gross [8] emphasized the high potentiality of the localization market in the Middle East offering implications for translation training and practice. The study listed many of the aspects that might affect localization projects including economic, logistical, technical, legal, and cultural aspects. Given the focus of the current research, the most significant issues in the localization of e-commerce websites are related to consistency in terminology and style and writing directions.

Al-Mazrooa [25] explored the interconnection between localization and translation studies for the sake of outlining a framework for theorizing common Arabic localization practices on both the micro- and macrolevels and how it is perceived by Arab localization practitioners. This study presented diverse case studies including the localization of the FIFA 15 video game, the Knorr website, and Blackboard Learn. The findings showed many problems in the localized versions including the directionality of the text, instances of nontranslation, untranslatability of technical terms, and the fragmented presentation of the source text.

In the same vein, Omar [26] investigated the quality of the localization of the learning management systems (LMS). He targeted the analysis of users’ perceptions of the Arabic version by means of a questionnaire. The findings showed that users of LMS encountered many problems in the Arabic versions of Blackboard, Microsoft Teams, and Zoom owing to diverse translation inconsistencies. The key reason is the differences marking the structure of both English and Arabic. Such differences are claimed to affect the reliability of these facilities.

Having reviewed related literature on the Arabic localization of e-commerce websites, we could now affirm the scarcity of studies addressing localization problems as well as users’ attitudes toward such websites. Therefore, this study, by means of quantitative and qualitative methods, offers an integrative analysis of the localization problems encountered by the users of Amazon.sa and how such problems affect their attitudes toward the use of Amazon.sa in particular and e-commerce websites in general. Unlike previous studies, toward such goal, both quantitative and qualitative methods would firstly offer an account of the common problems confronted by authentic users while using a website such as Amazon.sa due to localization issues. Secondly, the methodological approach implemented in this study would show

how such problems, unless unsolved, would affect the reliability of the target website. Finally, for empirical concerns, authentic problems in translation are offered and—hopefully—effective solutions are implemented.

### 3. Theoretical Framework

The economy of the world’s growing countries is fundamentally based on the solid infrastructure of their Internet networks. Internet offers simple and effective ways of communications between and among national and international companies. Such communication is happening via different platforms and applications, which are centered around the effective reliance on emails and email-like systems [28]. The online activity is currently deemed to be the backbone of successful e-commerce. It is crucial for the companies to get their businesses flourish to be virtually present. Moreover, Malkawi [29] states that the technological development that the world is witnessing nowadays constantly pushes toward changing the patterns of business activities, thereby having the process of communications between companies and costumers being eased to an unprecedented way.

Indeed, the past few years have witnessed a rapid growth in the sector of information and communication technology in Saudi Arabia, thereby helping with unprecedented change in the Saudi economy in general and e-commerce in particular. Generally speaking, various studies addressed the endeavor of companies and factories to adopt e-commerce strategies to boost businesses and compete their products through the online global market [30]. In this regard, Roehl-Anderson [31] (p. 3) claims that “technologically-advanced medium” gives companies the chance to work beyond geographical barriers and attract more customers to their products. However, the literature of e-commerce in Saudi Arabia is relatively sparse [30]. Such sparseness could be attributed to technical issues, the reliability of the e-commerce software and websites, security issues, shortage of well-trained employees, and legal regulations [32].

Sait et al. [33] claim that the technological infrastructure of Saudi Arabia is fitting for online business engagement and is capable of habituating to e-commercial endeavors. In this context, Makki and Chang [34] set an example from the field of mobile usage through which they argue that online retailers are finding solid ground to promote their products and that the expectations of customers are thoroughly met. Likewise, Aljarboa [30] offers a successful example of e-commerce in Saudi Arabia, which is the establishment of E-Mall by Saudi Post. This example reflects the encouraging and vigorous environment of online shopping in the country as evinced with the fact that Amazon and other international companies are investing in the country.

Singh and Pereira [35] argue that although companies hardly endeavor to have global websites, they also seek to localize their products to suit the cultural differences of online consumers. Cyr and Trevor-Smith [36] manifest that international companies tend to accommodate the linguistic and cultural features of their websites by localizing them. Therefore, companies are much concerned with making

their business websites customer-friendly; that is, consumers and website users should find no difficulty in reading, understanding and following the content and products available on their websites. What comes to mind in this respect are the cultural and linguistic barriers that translators working as localizers should alleviate [28]. Yet, localization is not simply equal to translation. Technically speaking, Schäler [37] (p. 157) defines “localization” as “the linguistic and cultural adaptation of digital content to the requirements and locale of a foreign market, and the provision of services and technologies for the management of multilingualism across the digital global information flow.”

Furthermore, Ethelb [38] (p. 108) defines localization as “a process that is carried out on a particular product” to adapt it so that it is compatible with the target locale, namely, the features of the language-culture combination. The process allows companies to make the most of the e-commerce activity and endorses their presence in the global market. Other frequent fuzzy terms that are peripheral to localization are translation, internationalization, and globalization. Gross [8] differentiates the four terms as follows: firstly, localization marks the process of adapting products or services to get them ready to be sold in other markets; secondly, *translation* simply refers to the replacement of the source text by an equivalent target text; thirdly, internationalization refers to the technical enabling of a product or a service for localization by isolating their linguistic and cultural data; finally, globalization covers the processes of localization and internationalization as it signifies the process of preparing products and services to be marketed worldwide while simultaneously keeping their local identity.

Yet, website localization is more effective in presenting products than translation. It deals with text, style, presentation, and graphical and technical components of websites [39]. In this regard, Van der Meer [40] (p. 10) deposits that website localization is “specialised service that has emerged in recent years (since 1999). It is basically a packaging of translation services with technical services that ensure the proper functioning of the translated sites.” Translation is the main pillar in the localization of websites as it modifies the content of a website to make it culturally accessible to target audience [41]. Indeed, a website is the “market channel” that companies use to promote their products [42].

Hasley and Gregg [43] provide the aspects that are essential in website localization, which include quality content, effective design, effortless navigation, tight security, and practical functionality. However, Singh and Pereira [35] indicate that localization professionals set frameworks to evaluate the quality of website localization, among which is the cultural customization. Furthermore, Hasley and Gregg [43] (p. 36) expound that cultural customization ensures that websites are localized with the preservation of cultural values embodied in “individualism/collectivism, masculinity/femininity, power distance, uncertainty avoidance, and high and low context orientations.” Singh et al. [44] (p. 94) empirically exhibit that culturally customized web content could yield to enhancing “purchase intention” or preferable “attitude toward the site.” Tixier [45] confirms that localization boosts the chances of e-sales to reach 200%.

Furthermore, the proper application of wide use of e-commerce necessarily obligates the use of localizing websites into different target cultures. This process is essential in creating effective relationship between companies and consumers that is built on trust [46]. In this regard, Aljarboa [30] recommends that companies need to continuously look after their quality of service and customers’ perception of online businesses. He stresses that “e-trust” and “e-loyalty” are key factors of success in online business. Wu et al. [46] further explain that localized websites suggest that linguistic and cultural complications are neutralized to help users feel content while surfing a website at hand. International corporations subscribe to the extraneous needs of the target locale. Localization is significant in expanding a company’s business and goals. It raises profits and participates in the strategic plans of companies’ expansion and development.

Yet, the localization of websites is not always error-free, and therefore, constant updates should be implemented. Since the content of a website constantly change, it must be revisited from time to time. Furthermore, a website is not limited to one type of text, thereby requiring diverse translation strategies. Other contents to be translated include images, links, and animations. Although previous studies have found some practical solutions for many of these problems, the localization into Arabic remains a markedly hard task for many reasons, though it ranks the sixth among the top ten languages with large number of speakers worldwide. Firstly, Arabic is very rich in dialects, accents, and styles, and therefore, the localizer has to consider the audience’s needs. Secondly, Arabic is highly expressive as the meaning of an utterance could be rendered in various ways. Thirdly, as affirmed by Mahasneh and Abu Kishek [19]; Arabic differs from many other languages in character coding and shaping, morphology, syntax, discretization, and ligature. Finally, Arabic retains peculiar cultural aspects especially those related religions, gender, currency, vacations, and working days.

#### 4. Methodology

The aim of this study was to offer an integrative analysis of the quality of localization of the Arabic version of Amazon.sa and how it affects users’ attitudes regarding the services offered by such an e-commerce website. Therefore, in order to evaluate and explore the responses of the users to the quality and reliability of the Arabic version of Amazon.sa, a survey is selected as one of the research basic instruments as surveys are very common for gathering information and measuring people’s attitudes and perceptions. Accordingly, we designed a short survey containing eleven statements in both English and Arabic for users’ conveniences and preferences. The survey was administered online to more than 300 participants through social media platforms including Twitter and Facebook. These statements targeted the textual content of the website and covered a wide range of assumed problems based on the literature review. The total number of participants who finally responded was 205 distributed into 127 males and 78 females

aged between 21 and 54 years. Complementarily, an invitation was sent to those participants to attend an online open discussion about some of the actual problems they encountered during the different services in the Arabic localized version of Amazon.sa. All problems are listed, sorted out, and discussed by researchers. Possible solutions are offered to a jury of five localizers with an experience of more than 10 years. Adequate translations are added accordingly. Regarding the analysis of the problems, we offered one example for each. The analysis goes as follows: the example is given in English (SL) and Arabic (TL); the translational problem is highlighted and described; and a more effective translation is offered after having been verified.

## 5. Data Analysis and Discussion

This section offers an analysis of the closed survey administered to participants with active accounts in Amazon.sa. The results obtained from the survey are further explained and exemplified through a discussion group addressing instances of the real problems that those participants encountered.

**5.1. The Survey.** The vast majority of the participants stressed that it is difficult to understand the content of the Arabic version of Amazon.sa due to the assumption that its language is not clear and sometimes not understandable. As shown in Figure 1, in response to the question about language clarity, around 41% of the participants expressed that the language used in the Arabic version of Amazon.sa is not clear. Similarly, 18% of the participants expressed the same point of view but with a stronger degree.

Problems with the clarity of the content can be attributed to ungrammatical structures. Most of the participants reported that the structure appears to be ungrammatical at occasions. As shown in Figure 2, around 25% of the participants strongly agree that there is an issue of grammaticality. However, 21% of the participants strongly disagree with such notion. Part of the problem could be ascribed to the consensus among localization researchers that the localization of websites still lacks the normalization of terms. Accordingly, inconsistent localizations due to differences in the grammatical structure would render many parts of Amazon.sa as hard to understand. Here, we would argue that localization scholars are aware of the challenges of the localization process, which requires profound technology-based knowledge that should be easily messaged through to target audience. However, audiences are rarely aware of the details of grammar when they want to have information on an item on sale. This point is supported by having only 20% of the participants who are not sure of the grammatical accuracy of some sections.

Not surprisingly, problems related to language clarity and grammatical accuracy affected participants' perceptions regarding the accuracy of the descriptions of the products on sale. As shown in Figure 3, around 38% of the participants reported that the description of products is not usually accurate and not relevant to the items on sale. In fact, these

data clearly indicate that the translation of promotional texts attached to items on sale could be misleading. Also, 23% of survey respondents are not sure of whether the description of items is accurate and relevant or not. In this regard, it should be mentioned that such irrelevance and unrelatedness could be ascribed to the technicality of terms and some collocates found in the descriptions attached to the items on sale. Indeed, translation studies closely function with lexicography and phraseology in terms of easing communications cross languages. The lexicology industry constantly attempts to normalize glossaries so that technical items are communicatively translated and conveyed across.

Additionally, the localization process is expected to customize and adapt highly technical terms for the purpose of easy navigation on the part of website's users. Indeed, the dynamicity of e-commerce websites elevates accessibility chances and quantity of visitors. However, the data obtained from the survey show that the majority of the participants reported problems with navigation of the Arabic version of Amazon.sa. As shown in Figure 4, around 46% of the participants reflected that the web content of the Arabic version of Amazon.sa is not handy and does not facilitate navigation. Almost 24% of the participants are "not sure" of this navigation issue as they reported that they sometimes convert to the English version in case there is a problem with rendering the meaning of the clickable navigation keys. In this regard, we affirm that the ultimate goal of the process of localization is to bridge the lexical gap between the source and target languages by offering functional and equally effective translations that appeal to customers.

In other words, lexical issues should be creatively addressed and the localizer will need to come up with a lexis that is handy and relevant to the items on sale. In our case, as affirmed in Figure 4, it is evident that the language of the Arabic version of Amazon.sa does not help navigation as 63% of the participants disagreed and 51% strongly disagreed with the notion of easy navigation due to the use of vague and less-functional lexemes.

Indeed, e-commerce is mainly geared toward increasing sales, and therefore, clear and understandable instructions are expected to promote accessibility and increase in the revenues and offer further business chances. Therefore, the electronic versions of instructions have to be effectively designed and effortlessly navigated Hasley and Gregg [43]. Yet, as displayed in Figure 5, the majority of the participants assured that instructions are not easy to understand and they are not designed in a way that supports smooth navigation. That is, 33% of the participants disagreed with the statement that instructions are understandable and allow smooth navigation, while 45% strongly disagreed; 23% of participants are "not sure." Apparently, much efforts are to be exerted regarding many lexical issues as a successful localization subscribes to creative lexicography.

Using highly technical lexemes in the either settings or items' descriptions in an e-commerce website is unavoidable. For example, the majority of the participants reported that the website settings are not linguistically clear and thus cannot be easily managed or administrated. As shown in Figure 6, regarding the impact of the language clarity on the

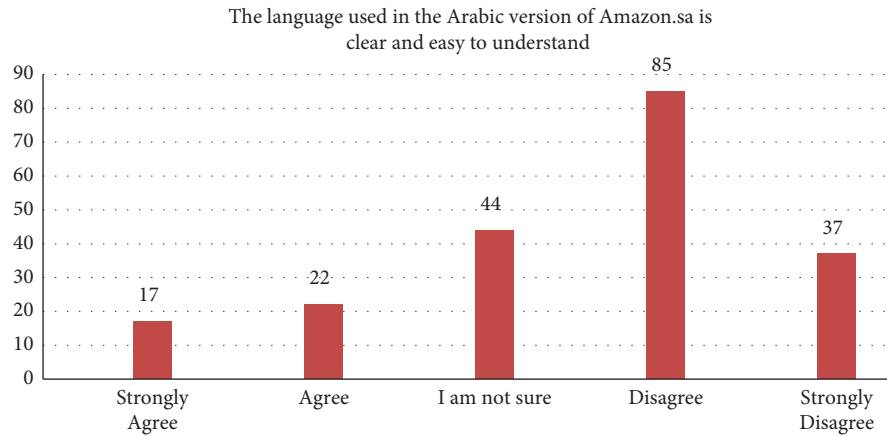


FIGURE 1: Participants' responses regarding the language clarity of the Arabic version of Amazon.sa.

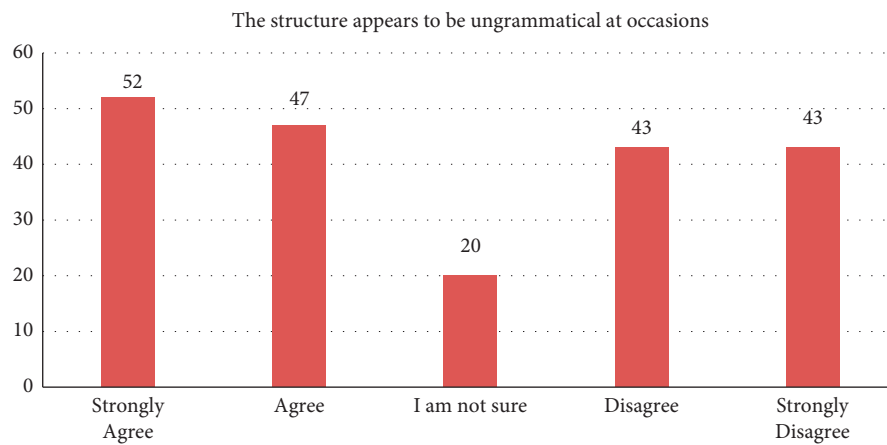


FIGURE 2: Participants' responses regarding the grammatical accuracy of the Arabic version of Amazon.sa.

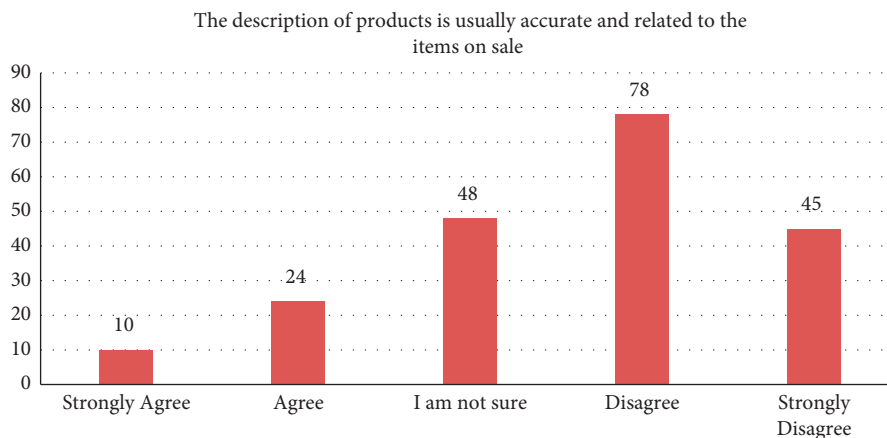


FIGURE 3: Participants' responses regarding the accuracy and relevance of the promotional texts attached to items on sale.

management of the website, around 26% of participants strongly disagree and 24% of them disagree. In other words, the website's Arabic translated settings are sometimes challenging in terms of management. This is an indication that localization does involve not only linguistic issues but also management and administrative issues, a fact affirmed by having around 24% of the participants agreeing with the

mutual influence between language clarity of easiness of management. That is why website administration requires a team that functions beyond the translational and linguistic patterns.

A point that should be clarified here is that the clarity of the website could be harmed owing to the diglossic nature of Arabic. Nowadays, Arabic has two language varieties:

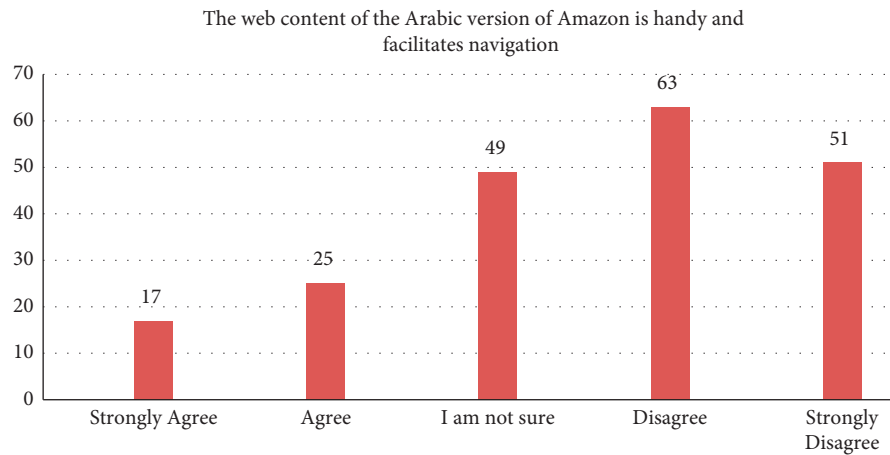


FIGURE 4: Participants' responses of the to the easy navigation of Amazon.

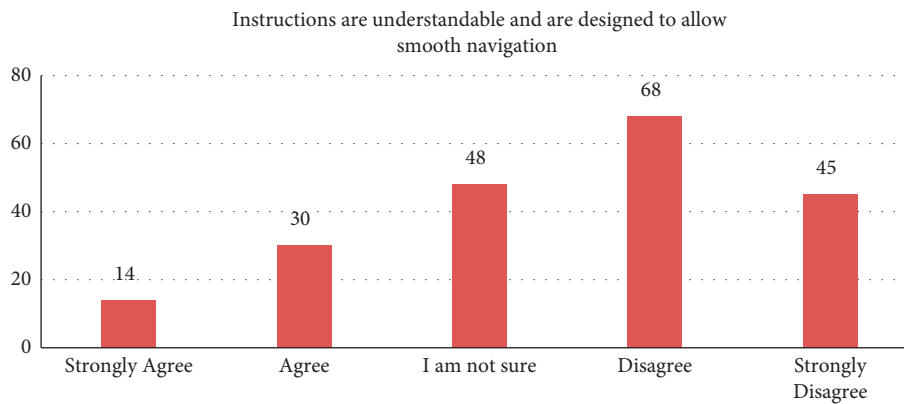


FIGURE 5: Participants' responses regarding the assumptions of clear instructions and smooth navigation.

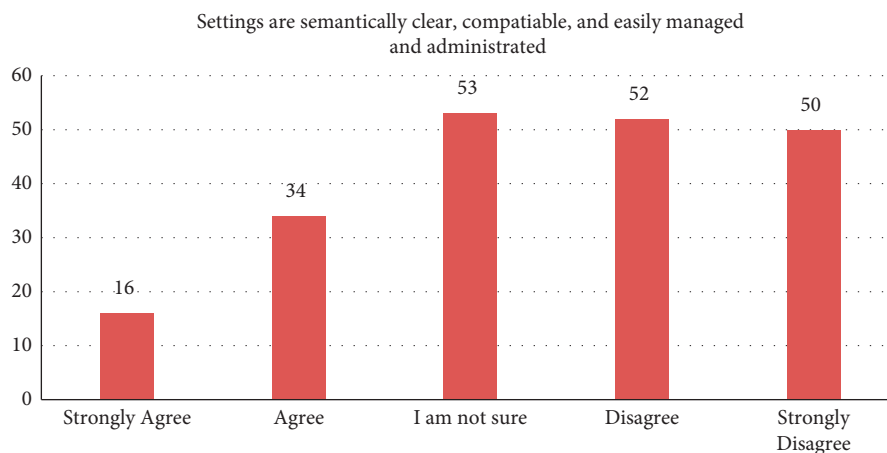


FIGURE 6: Participants' responses regarding the clear settings and easy management of the website.

Modern Standard Arabic (MSA) and other dialectal variations. Yet, the Arabic version of Amazon.sa is wholly localized in MSA. Therefore, given the fact that a part the website's users are not familiar with MSA, they reported that they suffered while navigating the website dealing with its settings and reading into the items' descriptions specially if they are highly technical. In sum, MSA is not preferred by all

users, and therefore, further domestication is required, possibly through using popular regional dialects addressing the Saudi locale.

Overall, the problems with the linguistic clarity of the web content and settings have direct implications to the website reliability. As shown in Figures 7 and 8, the vast majority of the participants stressed that they switch to the

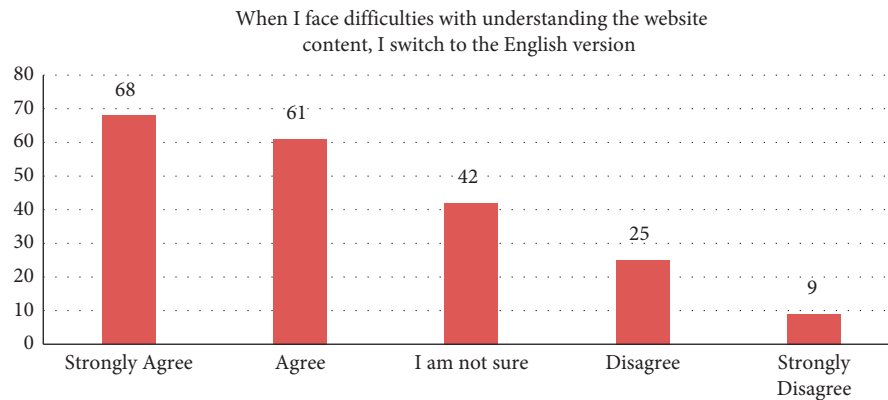


FIGURE 7: Participants' responses regarding the idea of switching to the English version of Amazon.sa in case of having difficulties.

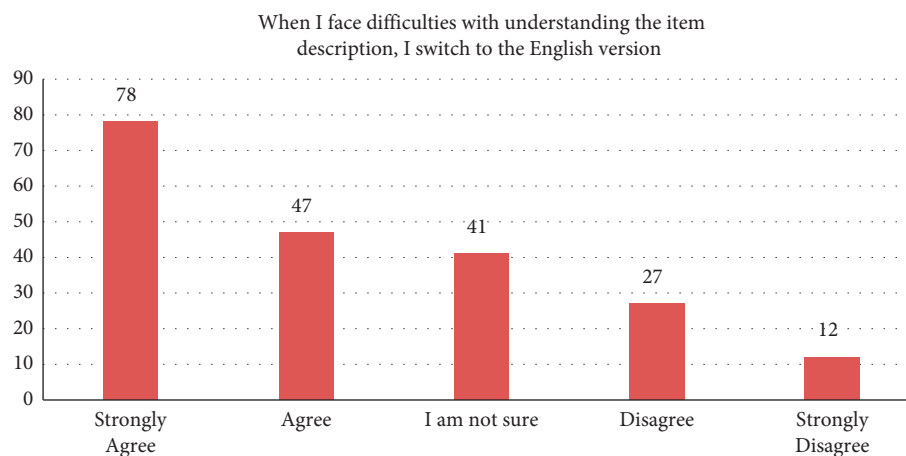


FIGURE 8: Participants' responses regarding the tendency to switch to the English version in case of any difficulties in understanding the items' descriptions.

English version of the website when they face difficulties with understanding the item description or labelled navigation keys. That is, 68% of the participants switch to the content in English, and 78% of them switch to the description of items in English. In fact, this is an area of promising research in language learning as it would investigate the reasons website users resort to navigate the English version, while the Arabic version is available. This could be an indication to many business companies to reconsider the languages to which they want to localize their products.

While most participants were comfortable with switching to the English version of Amazon.sa, almost 20% of them said that they were "not sure" if used to do so. In this regard, it should be mentioned that one of the lexicological issues that localizers find challenging is the deliberate play on words and their cultural contextualized situations. At occasions, more information needs to be detailed in the target versions so that readers will not be required to visit the source version. Equally important, website visitors occasionally find mismatches—in both the content and the items' descriptions—between the English and the Arabic versions of the website. Such mismatches force Saudi users to

frequently visit the English version to check whether they missed any of the websites' contents or the items on sale.

Despite the problems associated with the website's linguistic clarity and accuracy with their implications to item descriptions and smooth navigation, the majority of the participants have positive attitudes to the adaptability of the Arabic version of the Amazon website to the Saudi culture and norms. As shown in Figure 9, the majority of the participants reported that the Arabic version of Amazon is culturally appropriate to the Saudi society. In fact, cultural appropriateness is one of the major issues facing website localizers. The content could be clear but inappropriate. It could also be appropriate but unclear. The challenge in the localization process is that the localizer needs to come up with a content that is technology-friendly, culturally appropriate, and linguistically clear. The data show that the Arabic version of Amazon.sa notably managed to achieve such needful aspects.

Similarly, participants, as shown in Figure 10, indicated that the Arabic version of Amazon.sa includes graphics that are appropriate to the Saudi culture. In fact, the graphic content is usually culturally motivated. While around 23% are "not sure" about the cultural appropriateness of the

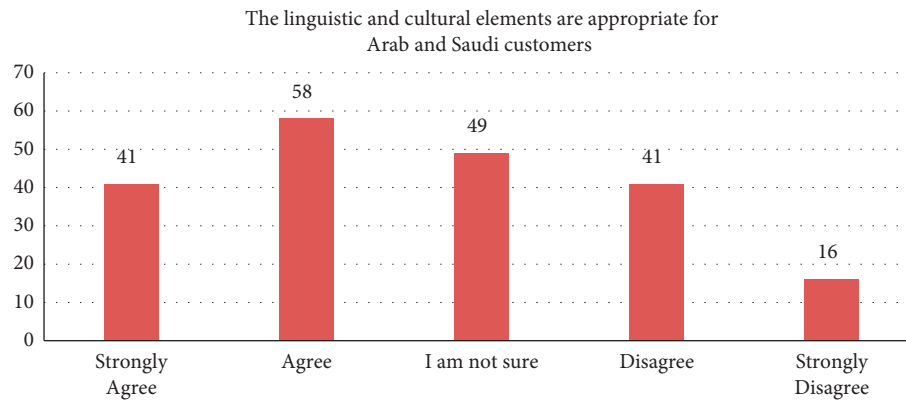


FIGURE 9: Participants' responses regarding the adaptability of the Arabic version of Amazon.sa to the Saudi culture.

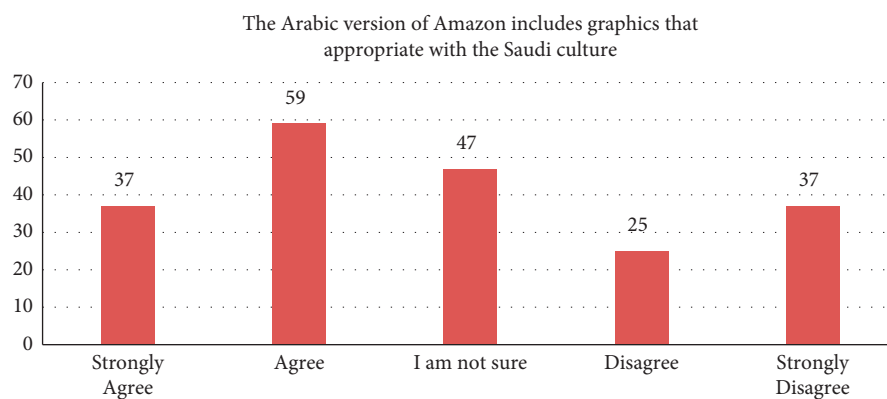


FIGURE 10: Participants' responses regarding the cultural appropriateness of the pictorial content of Amazon.sa.

pictorial content of the website, almost 47% agree with it. It is true that pictorial issues do not fall within the textual content of the website, and they are important to the process of localization so that companies effectively and efficiently promote their products.

Figure 11 further stresses this notion as the majority of the participants reported that the Arabic version of the Amazon website is culturally appropriate for the Saudi society. This means that communication in Amazon.sa is happening in a societally accepted manner via the application at hand. Online business could be new to the Saudi society; however, it has been adapted to be operating within the corners of the cultural and societal borders. This indicates that localizers have successfully managed to deal with complication beyond lexicalization. Descriptions of foreign products have been linguistically and culturally transferred to suit the cultural differences of online consumers. This is a clear manifestation that Amazon.sa managed the pictorial features of websites to accommodate the cultural and societal norms. In other words, it is culturally domesticated.

Having reported the statistics of the survey in terms of agreement, neutrality, and disagreement, the following section offers explanations of the representative examples of the major problems that participants encountered while using the Arabic version of Amazon.sa, thereby raising questions about the process of translation taking into consideration users' linguistic background.

**5.2. Open Discussion Group.** After the statistical analysis of the survey and in view of the obtained results, it could be generally affirmed that the users of Amazon Saudi have negative attitudes toward such facility owing to diverse problems in the process of localization. Since the results obtained from the survey require further explanation and elaboration, online open discussions were conducted to have real instances of the problems users confronted while using the localized websites, taking into consideration that most of the users do not know English.

The first problem that the users reported is related to the website's interface, namely, the main sections designed to for easy navigation as a part of the settings of the website. Some of these sections were transliterated rather than being translated. As shown in the figure, the lexeme "prime" is transliterated as "برايـم." Although such lexeme is used in the area of e-commerce to distinguish very important and distinguished customers, not localizing it as "حساب مميـز"—for example—would be more appropriate. Also, as shown in Figure 12, another example mentioned by one participant is the hyperlinks offered at the bottom of the interface. "Amazon Web Services" is not translated, but transliterated into "أمزون ويب سيرفيسـز." A more proper localization would be "خدمات أمزون على الإنترنت." Furthermore, "Book Depository" remains untranslated despite the fact that the brief description offered (viz., Books with Free Delivery Worldwide) is properly translated as

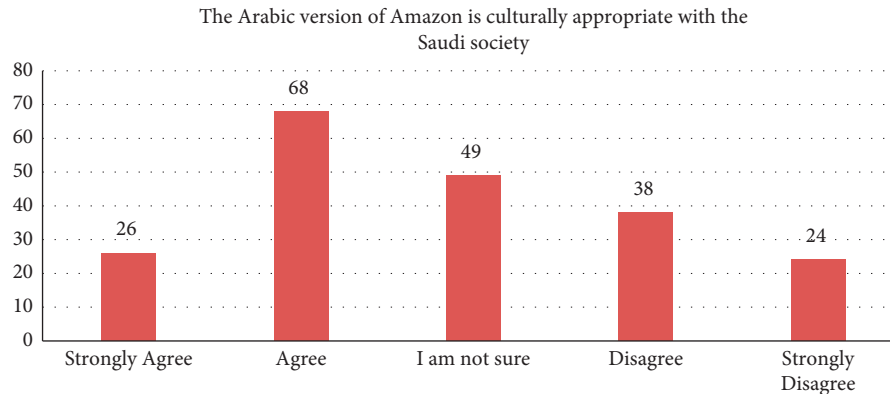


FIGURE 11: Participants' responses regarding the overall cultural appropriateness of Amazon.sa.



FIGURE 12: Examples for untranslated parts in Amazon.sa.

“كتب بتوصيل مجاني حول العالم.” Yet, a more grammatically well-formed localization would be “توصيل مجاني للكتب حول العالم.” The existence of a bilingual text would make it difficult to understand the function of untranslation.

Another major issue experienced by the users during the navigation of Amazon.sa is mixing the senses of a lexeme. The most interesting example mentioned by one of the participants was translated “Archived orders” as “أوامر مؤرشفة,” which is a formal—rather than functional—equivalent (see Figure 13). Here, “archived orders” offers a summary of the products previously ordered by a particular user. The localizer relied upon the direct meaning of “order” as a command. Accordingly, it should be functionally translated as “بات سابق لظـ.”

Other problems are related to the localization of collocations appearing in the settings of the website as instantiated in Figure 14.

In Figure 14, “movers and shakers” is translated as “أكثر تحرك الـ.” Roughly, “movers and shakers,” as a recurrent collocate in politics and business, signifies highly influential and powerful people in an activity. The localizer approached “movers,” from the root “move” as a monosemic lexeme, and hence, he/she translated it as “تحرك الـ.” Furthermore, he/she neglected localizing the word “shakers.” A more communicative localization of the collocate “movers



FIGURE 13: An example for mixing the senses of words in Amazon.sa.

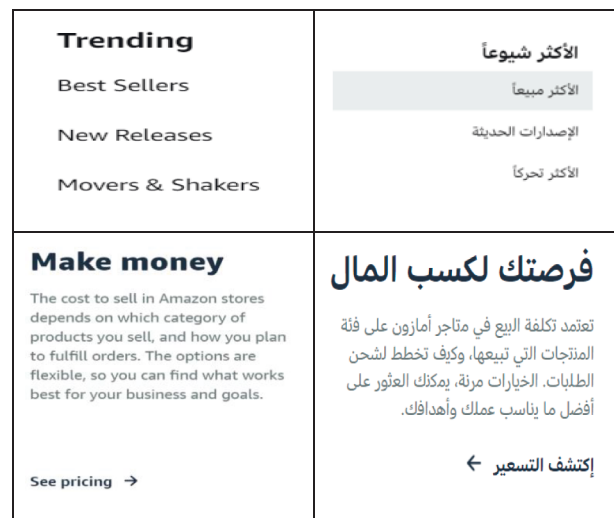


FIGURE 14: Examples of translated collocates.

and shakers’ would be “أفراد الأكثر نفوذاً” or “وادر الأعمال.” Also, in the figure, “make money” was freely translated as “فرصتك لكسب المال.” Although such localization communicated the intended meaning of gaining money through selling through the Saudi Amazon, ending the very short paragraph with “كتشف التسعير” which is the localization of “see pricing” is somehow confusing. A more communicative localization would be “علي غطّلطـ الأسعر.”

Furthermore, participants mentioned that the website displays inconsistent localization (see Figure 15). The adjective “outdoor” is translated as both “الغارجي” and “ع ب فى الهواء الطلق الـ.” Also, “dolls” is translated as



FIGURE 15: Examples of inconsistent localizations.

يمكنك أيضا الحصول على عنوان اولويب amazon.sa الخاص بك لاستخدامه في حملات التسويق .  
 (amazon.sa/yourbrand) فكر في الامر على انه عقار امازون الخاص بك، حديث يمنك عرض المنتجات الجديده والافضل مبيعا، و  
 حتى تقديم توصيات مخصصه للمتسوقين الذين يزورون.

You can also get your amazon.sa URL to use in marketing campaigns.  
 (amazon.sa/yourbrand) Think of it as your Amazon property, a modern one that showcases new and best  
 selling products, and even provides personalized recommendations for shoppers who visit.

FIGURE 16: An example of vague translated sections due to ungrammaticality.

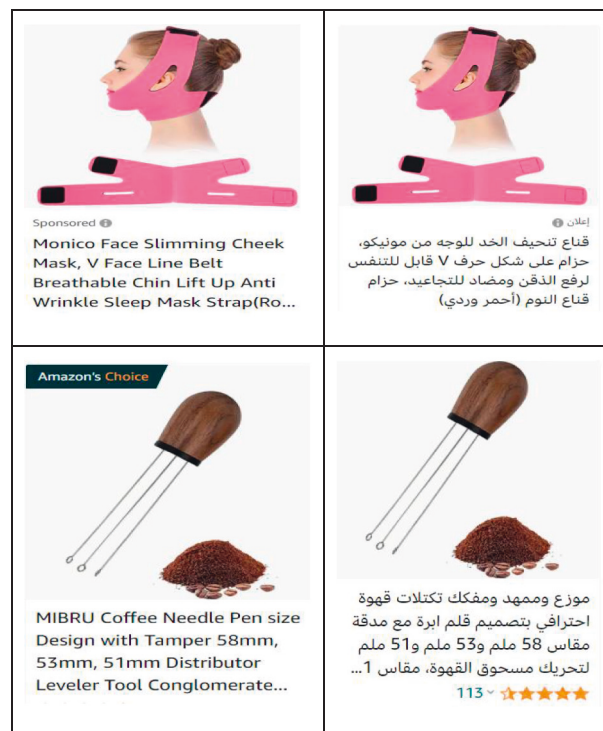


FIGURE 17: Examples of translated promotional texts attached to items on sale.

both “دميل” and “عرايسل”. Finally, “accessories” is translated as both “كسسورات” and “مرفقات”.

Although the website is technically domesticated in the sense that the Arabic text orientation is right and the text is generally readable, some participants reported that many translated sections in Amazon.sa are hard to grasp due to their ungrammaticality as shown in Figure 16.

amazon.sa يمكنك ايضاً الحصول على عن وان اولوى ب. خاص بك لاس تخداه في حملات التسويقي (amazon.sa/yourbrand). فكر في الامر على انه عقار امازون الخاص بك، حديث يملك عرض المنتجات الجديدة والافضل مبيعاً، وحتى تقديم توصيات مخصصة للمشتريين الذين يزورون.

You can also get your amazon.sa URL to use in marketing campaigns. (amazon.sa/yourbrand) Think of it as your Amazon property, a modern one that showcases new and best-selling products and even provides personalized recommendations for shoppers who visit.

As shown in Figure 16, the grammatical structure is markedly awkward due to the incomplete relative clause at the end, that is, “تقديم توصيات مخصصة للمشتريين.” Indeed, there is a missing direct object after the transitive verb “يزور,” not to mention other vague lexemes such as “عقار امازون الخاص بك.” Equally important, with respect to the promotional texts, i.e. descriptions attached to different items and commodities presenting their features and brands and accompanied by images of the item, the website displayed incoherent—and even nonsensical—translations. Consider the following examples in Figure 17 where the text boundaries are not well-identified.

In the advertisement of the slimming mask, the Arabic localization is mostly literal since the English version only offers key specifications in the form of separate word groups. “Monico Face Slimming Cheek Mask” is translated as “قناع” “تنحيف الخد للوجه من مونيكو” which seems tautological since “cheek” is a meronym of “face.” A more proper localization would be “قناع تنحيف الخدود من مونيكو” and taking into consideration is phonetically adapted to help with recognizing the brand. Furthermore, the localizer seems not to realize the semantic compatibility between “mask” and “breathable,” and hence, he/she translated “breathable” as “قابل للتنفس.” Indeed, the translation is awkward as “breathable” does not simply mean “able to breathe”; rather, it signifies an aspect of fabrics that allow air to pass through, and thereby, they never become warm. Accordingly, translating “breathable” as “يسمح بنفاذ” would be acceptable. Similarly, although the utterance “Anti-Wrinkle Sleep Mask Strap” should be taken as one-word group, the localizer divided it into two-word groups: “Anti-Wrinkle” and “Sleep Mask Strap.” Therefore, it is translated as “مضاد للتجاعيد. حزام قناع النوم” where it should be translated as “حزام للقناع من أجل نوم دون تجاعيد.”

In the second advertisement, the localizer neglected the brand name of the product (viz., MIBRU) that is crucial in commercializing it. In other words, the Arabic translation does not include such brand name. Yet, the localizer managed to reconstruct the text of the advertisement to

emphasize its product functions despite the fact that it is phrased ungrammatically. In terms of design, the English version described the product as “pen size,” which is translated as “بتصميم قلم.” A more functional translation would be “بتصميم على شكل قلم.” Finally, the word “tamper” is translated as “مدقة,” a word that neither fits the context nor the product specifications. Rather simply, it could be translated as “أداة تقليب.” Equally important, the participants reported that although they desired to recognize worldwide brands through their logos posted on the items on sale, all of these items missed the brand name. Therefore, they used to be forced to read the items’ descriptions in detail to recognize the brand names, all of which are transliterated, that is, phonetically adapted.

Therefore, in the process of website localization, vocabulary, grammar, and style must be standardized so as to reduce ambiguity and even meaning loss. Furthermore, the success of technical and cultural adaptation of e-commerce websites would be harmed if there are no clear and systematic translation strategies to be implemented taking into consideration the diversity of texts used in them.

## 6. Conclusion and Future Research

In conclusion, based on the results of both the survey and the open discussion, we would argue that although great efforts have been exerted in localizing the content of Amazon.sa website, a wide array of problems is persistent. Firstly, many sections of the website are partially translated as some English words and phrases are kept with the translated Arabic text. Secondly, the graphics in the English version are kept in the Arabic version to assist the verbal component represented by the items’ descriptions. Sometimes, the Arabic description is sometimes found to be vague and even misleading, but the pictorial display of items helped with recognizing them. Thirdly, many of the lexical items used in the website’s settings are technically foreignized. Finally, diverse inconsistencies with respect to grammar, style, and technicality are observed. Such findings assert Lobanov’s [27] conclusion that localization quality should reflect the original in terms of language, idea, cultural nuances, and accessibility. Furthermore, as previously emphasized by Wu et al. [46], linguistic and cultural complications in localized websites must be neutralized to help users feel content while surfing such websites. Based on these findings, we recommend that future research addresses the possibility of the cultural domestication and linguistic adaption of the content of Amazon.sa from a commercial translational perspective. Also, the same methodology could be further used with a larger number of participants speaking different languages. As for the implications of the present study, it should be noted that localizers should frequently revisit their translations of the different sections of e-commerce websites such as Amazon.sa with the aim of spotting problems that went unsolved. The problems highlighted in the present study could be used as a starting point for revisiting the localization of the website. Also, e-commerce websites have to be in contact with users to be updated with any problems that such users might confront for purposes of reliability.

## Data Availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

## Conflicts of Interest

The authors declare that they have no conflicts of interest.

## References

- [1] E. Turban, J. Whiteside, D. King, and J. Outland, *Introduction to Electronic Commerce and Social Commerce*, Springer, Berlin, Germany, 2017.
- [2] B. W. Wirtz, *Digital Business and Electronic Commerce: Strategy, Business Models and Technology*, Springer Nature, Berlin, Germany, 2021.
- [3] C. Combe, *Introduction to E-Business*, Routledge, Abingdon-on-Thames, UK, 2012.
- [4] K. C. Laudon and C. G. Traver, *E-commerce: Business, Technology*, Boston, MA, USA, Addison Wesley, 2019.
- [5] N. P. Rana, E. L. Slade, G. P. Sahu et al., *Digital and Social Media Marketing: Emerging Applications and Theoretical Development*, Springer Nature, Berlin, Germany, 2019.
- [6] H. Alshehri and F. Meziane, "Current state on internet growth and usage in Saudi Arabia and its ability to support e-commerce development," *Journal of Advanced Management Science*, vol. 5, no. 2, pp. 127–132, 2017.
- [7] B. A. Alyoubi, "The impact of big data on electronic commerce in profit organisations in Saudi Arabia," *Research in World Economy*, vol. 10, no. 4, pp. 106–115, 2019.
- [8] A. M. Gross, *Website Localization for the Arab Middle East—A Guidebook for Translation Study and Practice*, CreateSpace Independent Publishing Platform, Scotts Valley, CA, USA, 2016.
- [9] A. M. Sandouka, "A hybrid mobile application for an e-commerce store," *Journal of Computers and Signals*, vol. 1, pp. 16–23, 2020.
- [10] S. Alabdali, "A review of the use of e-commerce in Saudi Arabia," *Journal for Research on Business and Social Science (ISSN (Online) 2209-7880)*, vol. 1, no. 6, 2018.
- [11] A. AlArfaj, E. Solaiman, and L. Marshall, *Social Media and E-Commerce in the Kingdom of Saudi Arabia—Trends and Future Directions*, CHI-ArabHCI, 2019.
- [12] A. S. Alqahtani, R. Goodwin, and D. de Vries, "Structural equation modelling of the factors influencing the adoption of E-commerce in Saudi Arabia," *Research Anthology on E-Commerce Adoption, Models, and Applications for Modern Business*, pp. 556–579, 2021.
- [13] M. A. A. Aqlan, "Research on the status quo and countermeasures of cross-border E-commerce development in Arab countries," *Open Journal of Business and Management*, vol. 8, no. 4, pp. 1536–1542, 2020.
- [14] M. Benmamoun, H. Alhor, C. Ascencio, and W. Sim, "Social enterprises in electronic markets: web localization or standardization," *Electronic Markets*, vol. 31, no. 1, pp. 215–231, 2021.
- [15] S. Yalcin, N. Singh, Y. K. Dwivedi, A. R. Apil, and S. Sayfullin, "Culture and localization on the web: evidence from multinationals in Russia and Turkey," *Journal of Electronic Commerce Research*, vol. 12, no. 1, pp. 94–114, 2011.
- [16] M. Al-Batineh and R. Alawneh, "Current trends in localizing video games into Arabic: localization levels and gamers' preferences," *Perspectives*, vol. 30, no. 2, pp. 323–342, 2021.
- [17] A. Goaid Alotaibi and Z. Tuhaitah, "An overview of the localisation of video games into Arabic," *The Journal of Internationalization and Localization*, vol. 8, no. 1, pp. 26–47, 2021.
- [18] M. Á Bernal-Merino, "Creativity in the translation of video games," *Quaderns de Filologia. Estudis literaris*, vol. 2, no. 13, pp. 57–70, 2016.
- [19] A. A. Mahasneh and M. T. Abu Kishek, "Arabic localization of video games "tomb Raider™ (2013)": a start or a failure," *Lebende Sprachen*, vol. 63, no. 1, pp. 47–62, 2018.
- [20] A. Johnson, "Language policy and the Arabic localization of twitter," *The Cambridge Handbook of Arabic Linguistics*, Cambridge University Press, Cambridge, UK, pp. 507–531, 2021.
- [21] S. Barakat, "Arabic localization of open source software—A case of open journal system," *Asian Journal of Information Technology*, vol. 16, no. 7, pp. 626–631, 2017.
- [22] M. A. Jimenez-Crespo, *Translation and Web Localization*, Routledge, England, UK, 2013.
- [23] N. Singh, *Localisation Strategies for Global E-Business*, Cambridge University Press, Cambridge, UK, 2012.
- [24] J. Yunker, *Beyond Borders: Web Globalisation Strategies*, New Rider Publishing, Indianapolis, IN, USA, 2003.
- [25] N. Al-Mazrooa, *Arabic Localisation: Key Case Studies for Translation Studies*, Cardiff University, Cardiff, Wales, 2018.
- [26] A. Omar, "An evaluation of the localization quality of the Arabic versions of learning management systems," *International Journal of Advanced Computer Science and Applications*, vol. 12, no. 2, pp. 443–449, 2021.
- [27] M. Lobanov, "Localization quality. A myth or reality?" *Multilingua*, vol. 1, no. 3, pp. 1–4, 2014.
- [28] C. Chao, N. Singh, C. Hsu, Y. Chen, and J. Chao, "Web site localization in the Chinese market," *Journal of Electronic Commerce Research*, vol. 13, pp. 33–49, 2012.
- [29] N. Malkawi, "Executing knowledge management 2.0 through Web2.0 applications—applied study at Jordanian insurance companies," *International Journal of Business and Social Science*, vol. 7, no. 10, pp. 1–13, 2016.
- [30] S. Aljarboa, "Online shopping in Saudi Arabia: opportunities and challenges," *International Journal of Managing Value and Supply Chains (IJMVSC)*, vol. 7, no. 4, pp. 1–15, 2016.
- [31] J. M. Roehl-Anderson, *IT Best Practices for Financial Managers*, John Wiley & Sons, New York, NY, USA, 2010.
- [32] R. AlGhamdi, S. Drew, and W. Al-Ghaith, "Factors influencing e-commerce adoption by retailers in Saudi Arabia: a qualitative analysis," *The Electronic Journal on Information Systems in Developing Countries*, vol. 47, no. 7, pp. 1–23, 2011.
- [33] S. M. Sait, K. A. Al-Tawil, and S. A. Hussain, "E-commerce in Saudi Arabia: E-commerce and perspectives," *Australasian Journal of Information Systems*, vol. 12, no. 1, pp. 54–74, 2004.
- [34] E. Makki and L. Chang, "The impact of mobile usage and social media on e-commerce acceptance and implementation in Saudi Arabia," in *Proceedings of the 14th International Conference on E-Learning, E-Business, Enterprise Information Systems, and e-Government (EEE'15)*, pp. 25–30, Las Vegas, Nevada, July 2015.
- [35] N. Singh and A. Pereira, *The Culturally Customized Web Site: Customizing Web Sites for the Global Marketplace*, Routledge, London, UK, 2005.
- [36] D. Cyr and H. Trevor-Smith, "Localization of Web design: an empirical comparison of German, Japanese, and United States Web site characteristics," *Journal of the American Society for Information Science and Technology*, vol. 55, no. 13, pp. 1199–1208, 2004.

- [37] R. Schäler, "Localization," *Encyclopedia of Translation Studies*, Routledge, London, UK, 2007.
- [38] H. Ethelb, "Machine translation and technicalities of website localization," *Arab World English Journal*, vol. 3, no. 3, pp. 107–112, 2019.
- [39] J. Maroto and M. Bortoli, "Web site localization," *Paper presented at the Proceedings of European Languages and the Implementation of Communication and Information Technologies (Elicit)*, University of Paisley, Paisley, Scotland, 2001.
- [40] J. Van der Meer, "Limerick: localization research center (LRC)," *Impact of Translation Web services Localization Focus*, vol. 2, pp. 9–11, 2002.
- [41] P. Sandrini, "Localization and translation," *MuTra Journal*, vol. 2, pp. 167–191, 2008.
- [42] J. Yunker, "Building a global web site," *Multilingual Computing: The Global Web Guide*, vol. 55, no. 14, pp. 4–9, 2003.
- [43] J. P. Hasley and D. G. Gregg, "An exploratory study of website information content," *Journal of Theoretical and Applied Electronic Commerce Research*, vol. 5, no. 3, pp. 27–38, 2010.
- [44] N. Singh, G. Fassott, M. Chao, and J. Hoffmann, "Understanding international web site usage: a cross-national study of German, Brazilian, and Taiwanese online consumers," *International Marketing Review*, vol. 23, no. 1, pp. 83–98, 2006.
- [45] M. Tixier, "Globalization and localization of contents: evolution of major internet sites across sectors of industry," *Thunderbird International Business Review*, vol. 47, no. 1, pp. 15–48, 2005.
- [46] T. Wu, C. Peng, Y. Shi, and C. L. Sia, "An exploratory study of website localization strategies: the effect of exogenous factors," *HCI in Business. HCIB 2015*, Springer, Berlin, Germany, 2015.