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User Guides as Self-Teaching Aids in the Installation and Operation of Home Appliances

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Abstract

Purpose: This paper investigates the role of user guides of home appliances as self-teaching aids by examining their effectiveness on the overall user experience.

Methodology: Unstructured questionnaires were administered to 259 users of home appliances to seek their views on the language technicality and communicative effectiveness of user guides and their role as self-teaching aids. Descriptive analysis of data is presented as percentage bar charts that reflect the research questions.

Findings: The study reveals varying user perspectives on the clarity and effectiveness of user guides, particularly regarding the presence and labelling of images, and the impact of technical terminologies. The results show that using technical terms in user guides posed comprehension challenges to some respondents. The results also underscore the importance of user-centric designs, incorporating feedback, and iterative improvements in creating effective user guides.

Unique Contribution to Theory, Policy and Practice: The originality of this study is based on the fact that it explores effectiveness of user guides as self-teaching aids, a topic that has not been extensively examined. The study offers a valuable perspective on the language, technicality, and overall effectiveness of the user guides. The emphasis on user-centric design principles emphasises the practical implications of the findings, providing actionable recommendations for manufacturers to enhance their user guides. The paper contributes to the literature by addressing a specific aspect of user experience design in a practical and insightful manner.

Keywords: *User Guides, Home Appliances, Visual Aids, Installation, Communication*

Introduction

User guides have been known to perform several essential functions including the primary function of serving as an instructional tool for users of gadgets and equipment of various kinds (Tsai, Rogers and Lee, 2012). User guides or instruction manuals are either printed leaflets or miniature books, usually written in few pages and added to packages of appliances, machines and other equipment. It is worthy of note that manufacturers of home appliances specifically instruct product users to carefully read and understand user guides before initiating the installation process and use of the products. Therefore, the purpose of manufacturers of home appliances in developing user guides is to provide instructions on installation processes and guidance in the usage of the products. According to Sandez et al. (2023), these instructions must be previously tested by users without prior experience in handling the product, and without detailed knowledge of the product. The researchers explained that these instructions should be able to help the user of the appliance to even carry out product repair. Sandez et al. (2023) contended that manufacturers of appliances need to make these instructions available in user manuals.

Linguistically, user guides comprise texts and images that communicate the pertinent procedural steps required for installing and using an appliance appropriately (Babic et al., 2022; Puchleitner and Petrovic, 2014; Pham et al., 2012). In the case of home appliances, which are mostly electronic in nature, the availability of a user guide in the package, comprehension of the user guide and the user's pre-purchase information are crucial to the effective installation and operation. This is because, the inappropriate installation and/or operation could have adverse and occasionally, fatal consequences such as damage to the appliance, electric shock, and even death (Rektor et al, 2023; Tsai, Rogers and Lee, 2012).

The extant literature reveals that studies on user guides have centred on providing definitions (Pham et al., 2002), characterisation for high-quality user guides (Osman, Pervin and Gülmüş 2019; Pedraz-Delhaes et al., 2010; Chen and Dibb, 2010) and information on the quality dimensions of correctness, unambiguity, completeness and meaningfulness in user guides (Csaszar et al., 2022; Wand and Wang, 1996). That notwithstanding, our search has not identified any known study on the usefulness of user guides and how they function as self-teaching aids to users of home appliances, especially in the Ghanaian context. Research has shown that most user guides do not cater for the intended function of serving as efficient instructional guides for patrons of the appliances (Robinson, 2019). In this regard, a user guide may fail to provide adequate information and direction in the installation and operational procedures of an appliance. In effect, user guides of home appliances have varying communicative effectiveness when it comes to their function of helping patrons in the installation and use of these gadgets as some users of these appliances rely on the 'trial and error' approach (Herbes, Beuthner and Ramme, 2020). In some cases, too, they depend on information from external assistants, including sellers, technicians and people who have installation and operational experiences with these home appliances. It is on the premise of these observations that this research is being conducted.

This study examines the self-teaching ability of user guides of home appliances. The usefulness of user guides as a self-teaching aid in the installation process and the effective operation of home appliances is examined. Following Pedraz-Delhaes et al. (2010), the study seeks to ascertain whether user guides of home appliances check all the boxes of high quality by the use of appropriate texts and images. To achieve this objective, the study is grounded in the findings of other researchers and underpinned by the Visual Grammar Theory propounded by Kress and van Leeuwen (2020).

The paper is, structured as follows: the first section provides a background to the study. The second section examines related literature, while the third section discusses the methodology employed in the study. The fourth section analyses the data and presents the findings. The final section reports our general conclusions.

Theoretical framework

The study is grounded within the framework of multimodal discourse analysis, specifically Kress and van Leeuwen's (1996) Visual Grammar Theory. The theory is a framework that explores the systematic patterns and structures in visual communication. In their book, "Reading Images: The Grammar of Visual Design," Kress and van Leeuwen extend the concept of grammar beyond the realm of language to analyse how visual elements convey meaning and create communication systems. There are five crucial aspects of the theory: Visual Grammar as a Semiotic System, Multimodal Communication, Visual Elements as Choices, Roles of Visual Elements, and Genre and Visual Grammar.

The theory considers visual communication including texts, videos, images and signs as a semiotic system, similar to language. According to Kress and van Leeuwen (1996), visual elements such as colour, line, shape, and spatial arrangement are considered to have symbolic meanings, contributing to the overall communicative effectiveness of a message, suggesting that a text is not the only mode of communication. This aspect is considered representational meaning by indicating how semiotic systems have the capacity to depict objects and the relationships between them beyond the boundaries of the representational system or within the cultural context. This concept is connected to the internal dynamics among the participants, objects, actions, and the settings of a particular communicative event (Kress & Van Leeuwen, 2006). The second aspect of the theory, multimodal communication, emphasises that visuals, along with verbal and other semiotic resources, work together to convey meaning. This multimodality allows for a richer and more shades of understanding of communication. Visual elements as choices posits that the selection and arrangement of visual elements are deliberate choices made by communicators. These choices are influenced by social, cultural and contextual factors, shaping the interpretation of the visual message. The theory establishes roles of visual elements as an aspect. Concerning this, Kress and van Leeuwen (1996) identify specific social semiotic roles for visual elements. For example, the use of colour may signify emotions or cultural meanings, while spatial arrangements can convey

hierarchy or relationships. The final aspect of the theory is genre and visual grammar. Regarding this, the theory explores the uniqueness of the different genres or types of visual communication (e.g., user guides, advertisements, news articles, or film) relative to other distinct visual grammar conventions. Understanding these conventions aids in interpreting visual messages of specific communication contexts. Generally, the theory of Visual Grammar by Kress and van Leeuwen provides a comprehensive framework for analysing the grammar of visual design, offering insights into how visuals communicate meaning in diverse cultural and social contexts (Kress and van Leeuwen, 2001).

Literature Review

User guide, as used in this study, refers to a document that explains how home appliances should be installed, used and maintained. A user guide of a home appliance is expected to offer to the user the needed technical information throughout the life span of the product (Pham et al., 2002). By performing communicative functions to patrons of products, user guides serve as the theoretical and practical bridge between the manufacturers of the products and the users (Robinson, 2019). By serving as the communicative dimension of products, a user guide is a crucial component of a company's product management strategy. The implication is that a user guide has the ability to influence positively the market performance of a product due to its potential in reducing losses and damages that may occur as a result of inappropriate installation, maintenance and use (Babic et al., 2022; Osman, Pervin and Gülmüş, 2019). This means that user guides need to be of high quality in terms of possessing the characteristics that facilitate the performance of their function as self-teaching aids. Osman, Pervin and Gülmüş (2019) contend that when a user guide is of high-quality, it makes installation, operation, use, maintenance and evaluation very easy. Hence, an effective user guide increases the efficiency of the product and reduces the overall consumer support costs for the manufacturer.

Research findings (Herbes, Beuthner and Ramme, 2020; Phamet et al., 2002) indicate that the quality of a user guide comprises several dimensions, including readability and clarity of the language, and user friendliness, where friendliness could imply the format of the document and the presentation of the information contained. Because, quality dimensions of user guides consist of content, presentation and form, Phamet et al. (2002) argue that user guides of products need to contain accurate information. Also, the information must be in the most suitable format to serve its purpose. Manufacturers need to ensure that user guides of their products contain appropriate illustrations, as they significantly influence user assessments of the products. The documentation of the user guides must contain both texts and images to ensure consumers' holistic understanding (Kress and van Leeuwen, 2020; Gemoets and Mahmood, 1990). Every user guide must clearly show the installation process the product, how it operates, maintenance procedures, and how to dispose it off after its expiration. The information contained in user guides must be comprehensible to the users of the products by being accurate, consistent, current, reader friendly and sufficient in content (Chen and Dibb, 2010; Pedraz-Delhaes et al., 2010). An effective user guide should

demonstrate suitable organisation and consistent terminology, coupled with images and diagrams. The information in the user guide must be arranged systematically, and must possess demonstrable properties (Wand and Wang, 1996; Guillemette, 1990).

User guides of products are very crucial for manufacturers because they have a direct effect on consumer perceived quality of products, where perceived quality refers to the reviews that the consumers make regarding the product (Babic et al., 2022; Zeithaml, 1988; Smart et al., 2001; Pedraz-Delhaes et al., 2010). Zeithaml (1988), for instance, contends that consumers' perception approach to the evaluation of product quality constitutes the entire evaluation of a product with the idea that the notion of quality is a relatively global value. Research findings have revealed a positive significant correlation between the quality of user guides and customer perceived quality of products (Osman, Pervin and Gülmüş, 2019; Smart et al., 2001). This implies that consumers of products consider the quality of the user guides as an evaluation element of the quality of the products. Osman, Pervin and Gülmüş (2019) explain that consumer perceived quality of electronic devices mediates the influence of the quality of user guides on customer satisfaction. Manufacturers therefore need to consider the production of high-quality user guides as an important element of product development, management and packaging strategy. It is therefore needful for manufacturers to invest a substantial portion of their budgets towards the production of high-quality user guides (Osman, Pervin and Gülmüş, 2019).

Pre-purchase informational cues of products are also employed in the development of beliefs in products (Olson, 1978). However, actual consumers of products make use of post-purchase informational cues for quality appraisals (Kihlstrom, 1974). Accordingly, a product's user guide serves as a post-purchase product information that consumers may leverage on for product operation, maintenance and disposal (Smart et al., 1996). Pedraz-Delhaes et al. (2010) reported that the language quality of a user guide affects how both the product, and its manufacturer are evaluated. Through the user guides, consumers make inferences regarding the quality of the product, and perceptions of poor quality can negatively affect consumers' behavioural intentions toward the product and the manufacturer (Osman, Pervin and Gülmüş, 2019). As a post-purchase informational cue, user guides, can be considered as an important element that affects the total product experience (Sandez et al., 2023).

Methodology

Research designs

Quantitative approach is employed in conducting the study. The data were collected using questionnaire. A set of questions that centred around the research objectives was formulated. The questionnaire was sectionalised into three. Section A entailed personal information; Section B consisted of respondents' experiences with the use of home appliances and Section C comprised the linguistic characteristics of user guides. The questionnaire tasked respondents to share their

experiences about the installation, use and maintenance of home appliances. The data generated were analysed using descriptive statistics.

Population

The population for this study comprised people who could read and write and had at least a high school level of education. The setting for the study was a technical university in Ghana. This setting was considered because the institution comprised people with different backgrounds in terms of culture, economic, professional, religious and academic status. Specifically, the population consisted of teaching staff, non-teaching staff and students. The sample for the study was purposively selected through identification the social media platforms of the various categories of respondents. The Google form questionnaire was sent to the social media platforms of the respondents. A total of 260 respondents filled out the Google Form questionnaire.

The majority of the respondents were in the age bracket of 20-29. Out of the 256 respondents, 221 representing 85% were below thirty years. The respondents within the age bracket of 30-39 were 38, representing 14.8%. Only one respondent was within the age bracket of 60 and above. As a government institution, employees' active working age ends at 60. This explains why the study did not have many respondents occurring within the age bracket of 60 and above. The data therefore reflect the age characteristics of the population of the institution.

Regarding the educational qualification, a total of 254, representing 97.7% of the respondents had tertiary level education. 6 of the respondents, representing 2.3% indicated that they had secondary level education. The educational characteristics of the respondents reflects the population of the research site as the majority of the population of the institution have educational qualifications above secondary level.

The analysis shows that 181(73%) of the respondents belong the formal sector of the university, while 66 (27%) belong to the informal sector. The informal sector, in this regard comprises national service personnel, security personnel and artisans at the various service departments of the university. The formal sector on the other hand consists of students, teaching and administrative staff of the university community. The gender categorisation of the data shows that the majority of the respondents are males, constituting 157 (60.4%). The remaining 103 (39.6%) are females. The gender characteristics of the respondents reflect the population dynamic of the university. The institution is a technical university, and with the situation in Ghana where technical courses are dominated by males, it is not surprising that the majority of the respondents are males.

The researchers sought ethical clearance from the ethical committee of the institution before the commencement of the study. This study was conducted in compliance with ethical guidelines for research involving human participants.

Data coding and analysis

The study employed structured questionnaire in the collection of the data. The questionnaire had three sections: respondents' demographic, respondents' experience with home appliances and linguistics characteristics of user guides. Each of the sections has closed ended questions which were accompanied by responses of either a yes/no, or the Likert scale with 'option '1' being strongly agree and option '6' being "strongly disagree". Participants had the option to select one of the six frequency choices when responding to the questions. These response options included "strongly agree", "fairly agree" "disagree" "fairly disagree," "disagree" and "strongly disagree." To make the findings more specific, these response options are categorised into two i.e., "agree" and "disagree" in some cases.

Results

Experience with home appliances

To determine the respondents' experiences with home appliances, different questions were asked. The first question was whether the respondents install the home appliances themselves. Figure 1 captures the responses of the participants.

Figure 1: Did you install the appliance yourself?

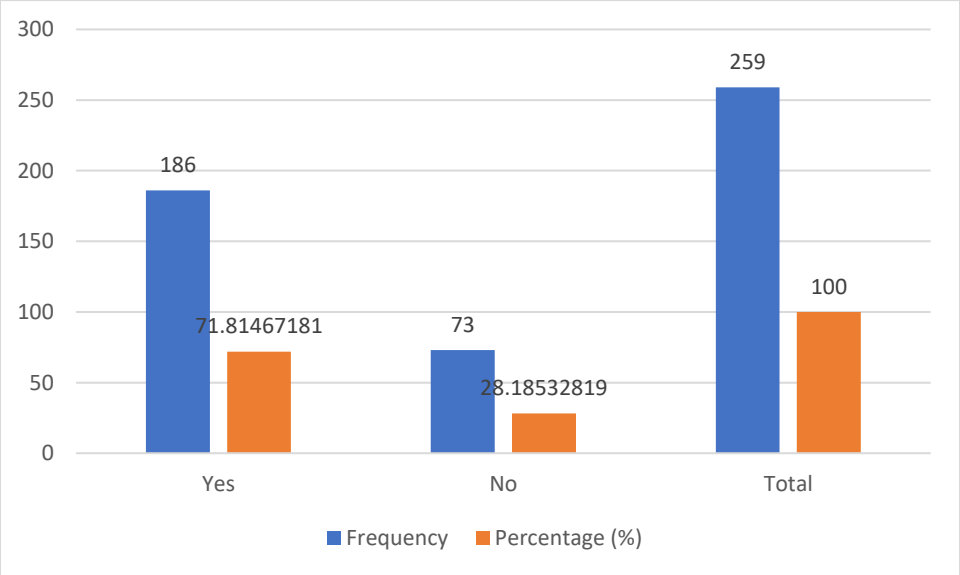
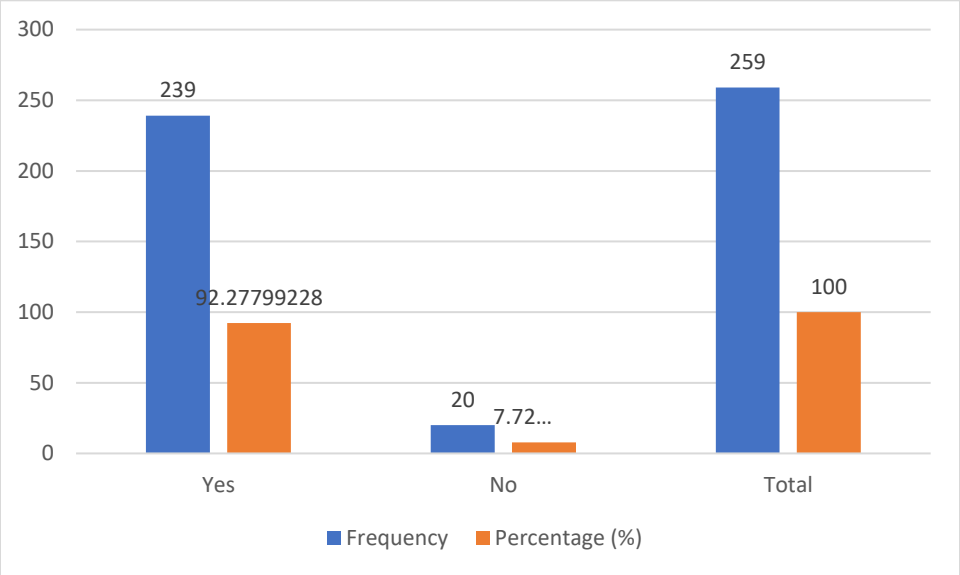


Figure 1 reveals that out of the 259 respondents who answered the question, 186 representing 71.8% indicated that they were able to install the home appliance themselves. 73 (28.2%) of the respondents reported that they did not install the appliance themselves. This means that the majority of the respondents have the ability to install home appliances without the help of a technician. This finding reflects the attributes of the participants of the study as the majority of them are technically inclined, either as students offering technical courses or lecturers teaching technical courses.

The study sought to determine whether the home appliances the respondents encountered came with user guides. The result of the analysis is captured in Figure 2.

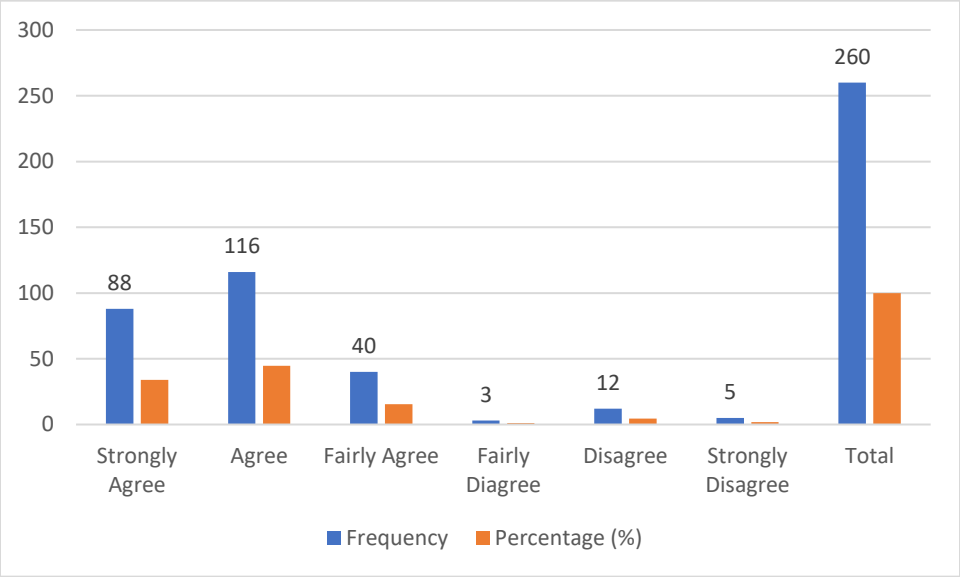
Figure 2: Did the appliance come with any user guide?



239 participants out of the total of 259 indicated that the appliances they used came with user guides. 20 respondents, representing 7.7% indicated that the appliances they used did not come with user guides. Even though home appliances come with user guides from the manufacturers, the results show that some respondents admitted that their appliances did not come with user guides. This is because these respondents purchased pre-owned home appliances, which usually do not come with user guides.

The study also aimed to determine the ability of the respondents in reading the user guides. The data presented in Figure 3, which reflect the responses of 260 respondents, provides valuable insights into the usability and accessibility of user guides that accompany home appliances. The discussion of these results sheds light on the implications and potential areas for improvement.

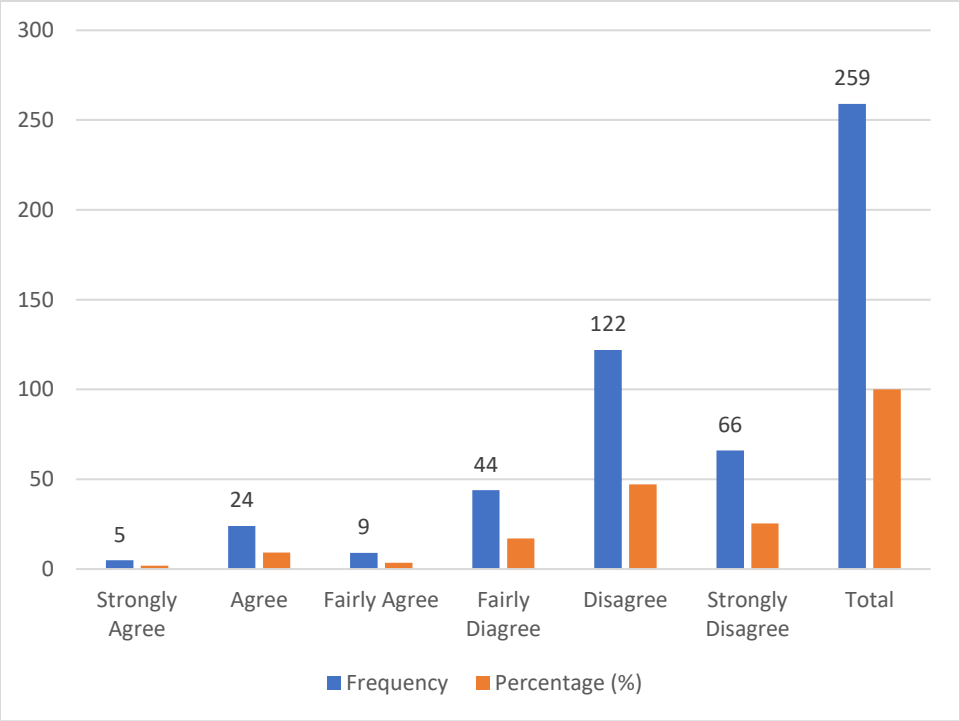
Figure 3: I was able to read the user guide.



One striking observation from the data is the overwhelmingly high agreement (93.85%) among respondents who indicated that they were able to read the user guides. This indicates that the majority of the respondents find the user guides accessible. This is a positive sign, suggesting that the user guides are generally effective in communicating essential information to users. This finding aligns with the observation of Pham et al. (2002) that the intention of product manufacturers in designing user guides is to offer to the users of the product any technical information that may be required in the course of the product life. With the majority of the respondents indicating that they were able to read the user guides reflect the characteristics of the population, as most of them have educational level above secondary education. However, the data also reveals a small but noteworthy minority (6.15%) of respondents who indicated that they could not read the user guides. While this percentage is relatively low, it still represents a group of users who face challenges in accessing and understanding the provided materials. This raises important questions about inclusivity and usability. The high percentage of respondents who can read the user guides suggests that, in general, the user guides are well-designed and clear. Still, the small percentage of users who cannot read them emphasises the importance of considering accessibility and inclusivity in user guide design. In this regard, Sandez et al. (2023) posit that information in user guides should be presented in different formats (text, image and video) to enable accessibility by all manner of users.

Another theme that was explored in the research is the use of the user guides in the installation process of the home appliances. The results in Figure 4 show that out of the 259 respondents, 38 (10.44%) indicated that they used user guides in the installation process of their home appliances. 232, representing 89.56% disagree that they used user guides in the installation process of their home appliances.

Figure 4: I use the user guide in the installation process.

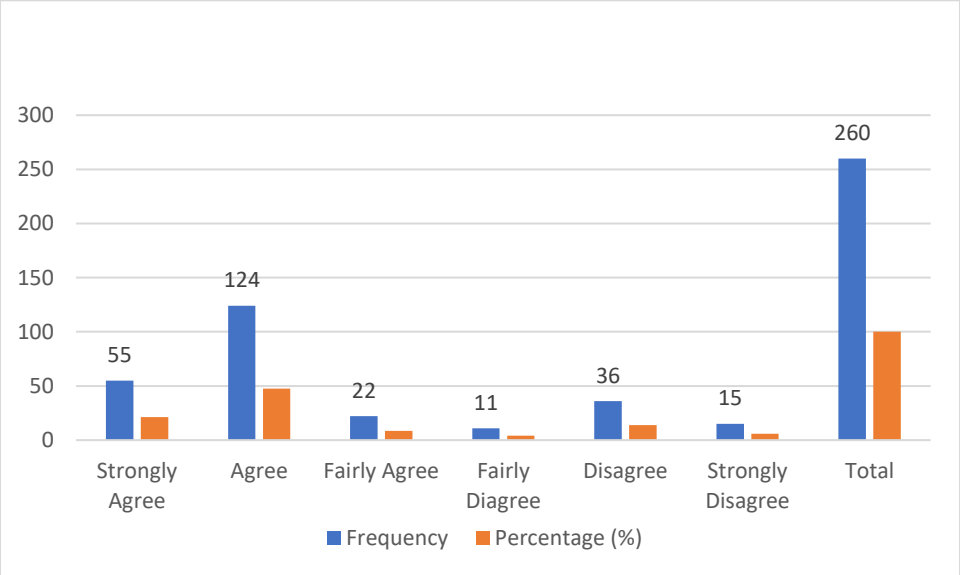


The fact that approximately 10.44% of respondents used user guides during installation of home appliances highlights the importance of providing comprehensive and user-friendly user guides, as they serve as a valuable resource for a subset of users. With the majority of the respondents, around 89.56%, stating that they did not use user guides during appliance installation suggests that a significant number of users of home appliances may rely on prior knowledge, experience, or other sources of information when setting up their home appliances. This finding indicates that while user guides are valuable to some users, there are people who find installation intuitive or prefers alternative methods of assistance. Therefore, understanding the needs and preferences of both user groups can guide improvements in user guide design.

The study further sought to determine whether users of home appliances had to engage the services of technicians or other people for assistance in the installation process. The analysis of the result is captured in Figure 5. The results provide insights into the extent to which individuals rely on external assistance when setting up their appliances. The results show that approximately 77.3% of respondents sought help during the installation process of their home appliances. This suggests that a large number of users feels the need for external assistance when setting up their appliances. A notable proportion of the respondents, around 22.7%, indicated that they did not seek help from others during appliance installation. These respondents might have either found the installation

process straightforward, relied on user guides, or preferred self-sufficiency in setting up the home appliance.

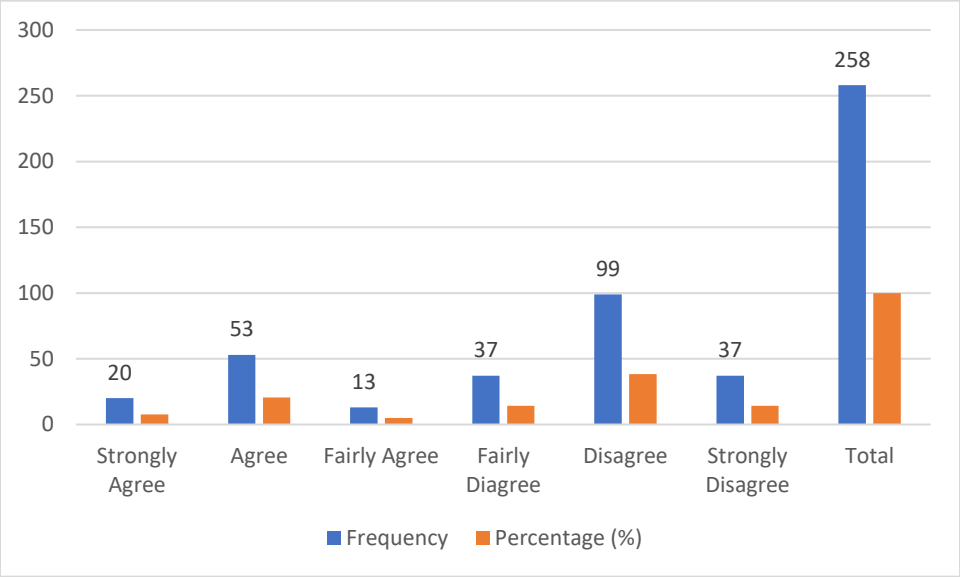
Figure 5: There were some appliances that someone helped me to install.



The fact that nearly 77.3% of respondents sought help highlights the importance of providing clear and accessible sources of assistance for users during the installation process. The 22.7% who did not seek help may suggest that a portion of users either have prior experience with similar appliances or possess the necessary skills and confidence to install them independently.

It is worthy of note that the respondents explained that they had engaged the services of technicians, sellers, dealers and people who might have had prior experience with the home appliances in question. Regarding this, the study sought to ascertain the use of user guides by these hired persons during the installation process. The result indicates a significant divide in the use of user guides by the engaged persons during the installation process. Figure 6 captures the result of the analysis.

Figure 6: The person used the user guide in the installation process.

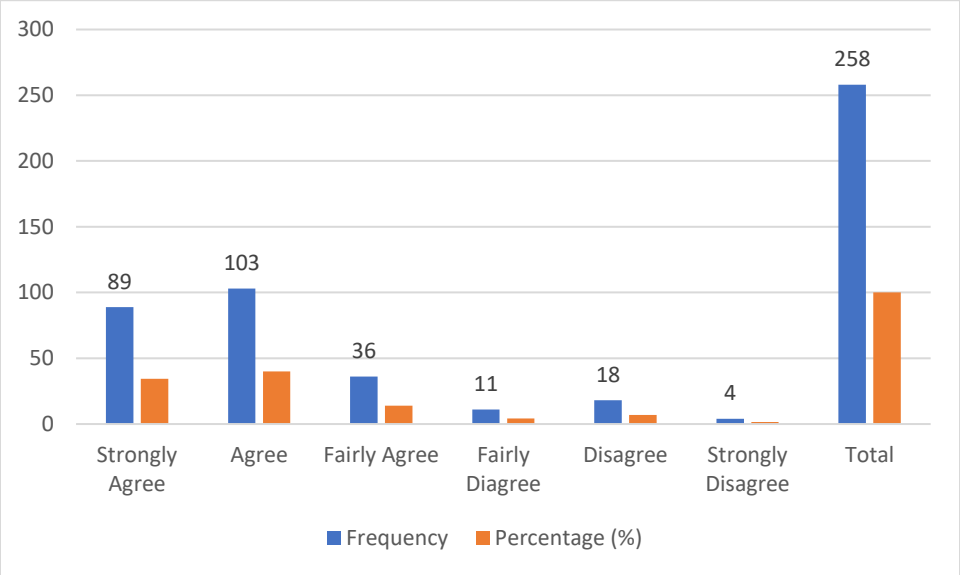


172 respondents (66.7%) disagreed, indicating that the engaged technicians, sellers, dealers and people who might have had prior experience with the home appliances in question did not use the user guides during the installation process. This suggests that the majority of the people engaged to help with the installation relied on other sources or methods for appliance installation, which could be due to various factors, including perceived ease of installation, prior experience with similar appliances, or issues with the usability of the user guides. This finding agrees with the finding of Herbes, Beuthner and Ramme (2020, p. 268) that product "consumers also draw on information they ask from the retailer and do internet search." This could be an indicator of trust in the expertise of those assisting. 86 respondents (33.3%) agreed that the technicians, sellers, dealers and people who might have had prior experience with the home appliances in question, who helped with the installation process used the user guides. This implies that while many users may not personally consult the user guides, they are open to or rely on external help (Herbes, Beuthner and Ramme, 2020). The findings raise questions about the effectiveness of the user guides. If a significant number of users do not consult the user guides directly, it might indicate issues with the clarity, comprehensibility, or user-friendliness of the user guides. Moreso, user behaviour plays a critical role in this context. The decision not to use user guides could be influenced by various factors, including individual preferences, confidence, or even time constraints. Understanding the reasons behind this behaviour is vital to improve user guide utilisation. For manufacturers, this result highlights the importance of not only creating informative and accessible user guides but also ensuring that users are aware of and encouraged to use them. This can be achieved through better marketing and instructions on the appliance packaging and through user education initiatives.

Linguistic characteristics of user guides/language of user guides

The section delves into a critical aspect of technical communication. The function of user guides of home appliances as essential tools for conveying instructions and information to users requires that they have certain unique linguistic characteristics and styles. In this section, we explore how language is employed in user guides, examining the clarity, simplicity, and effectiveness of communication. Understanding these linguistic features is paramount for ensuring user guides serve their purpose in assisting users to navigate and operate home appliances efficiently. The study explored the enunciation of user guide vocabulary. Figure 7 summarises the result of the analysis.

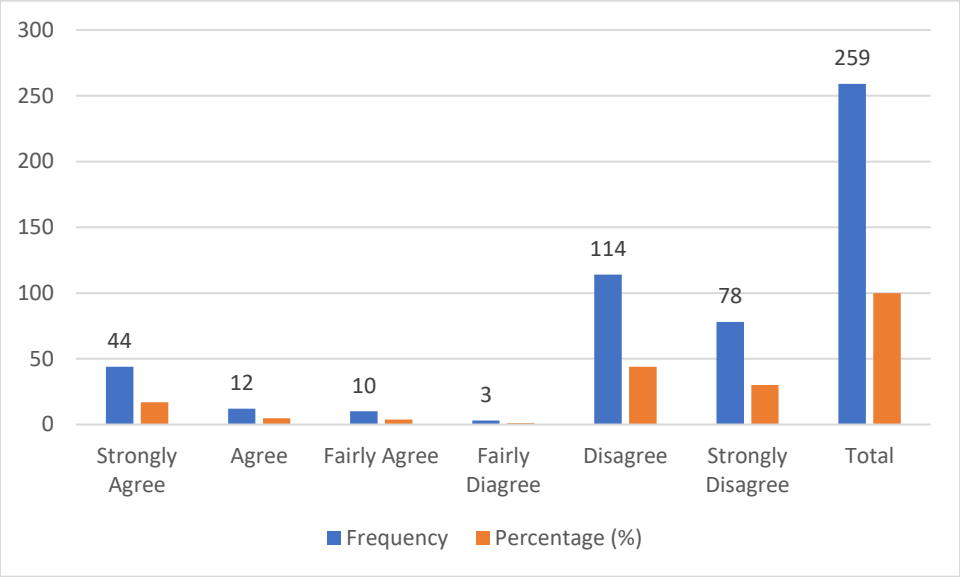
Figure 7: I was able to pronounce all the words in the user guide.



The results show that the majority, approximately 88.3%, of respondents reported that they were able to pronounce all the words in the user guides. This suggests that the terminologies used in the user guides were generally clear and phonetically accessible to the majority of users. The fact that the majority of respondents were able to pronounce all the words in the user guides indicates that the language and terminologies used in the user guides were generally user-friendly and accessible. About 11.7% of the respondents indicated that they were unable to pronounce some of the words in the user guides, possibly due to technical or domain-specific language that characterised the user guides. This finding confirms that assertion of Pedraz-Delhaes et al. (2010) that the language of the user guide affects the quality of the user guide. Regarding this, consumers of home appliances might benefit from user guides that incorporate clearer phonetic notations or pronunciation guides, especially when dealing with technical terms.

Exploring the linguistic features of the user guides further, the research sought to determine the comprehensibility of the vocabulary of the user guides. The results of the analysis of the responses regarding whether respondents understood the words in the user guides are captured in Figure 8.

Figure 8: I understood the user guide.



The results show that a significant majority, approximately 75.2% of respondents, reported that they did not understand some of the words employed in the user guides. This suggests that a substantial portion of users encountered difficulties in comprehending the content of the user guides. Chen and Dibb (2010) implored designers of user guides to make the content of user guides comprehensible to the users of the products. A smaller proportion, around 24.8%, indicated that they understood every word in the user guides. These respondents likely found the content of the user guides to be clear and comprehensible (Pedraz-Delhaes et al., 2010).

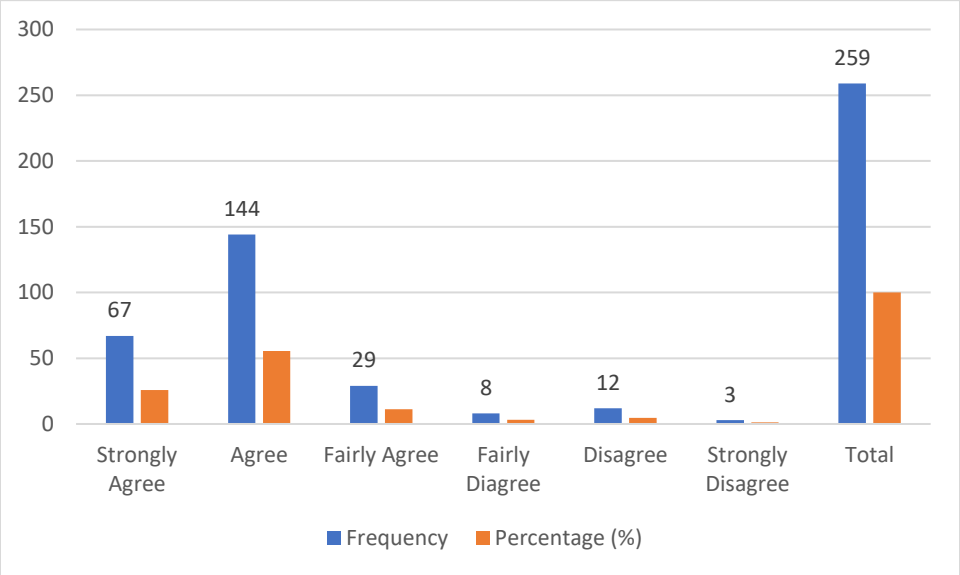
The fact that a significant majority of respondents did not understand the user guides raises questions about the effectiveness of the user guides in assisting users during appliance installation and use. The 24.8% respondents who understood the user guides highlights that clear and user-friendly language, along with effective visuals and instructions, can contribute to user guide comprehensibility. This finding corroborates an aspect of visual grammar theory, multimodal communication, which emphasises that visuals, along with verbal and other semiotic resources, work together to convey meaning (Kress and Van Leeuwen, 2006). This finding concurs with the argument of Sandez et al. (2023) that manufacturers of appliances need to make multimodal instructional information available in user manuals. In this way, manufacturers of the home appliances ensure that instructional information becomes available to practically all users. Presence of multimodality in user guides enhances a richer and more shades of understanding of technical communication (Sandez et al., 2023; Kress and van Leeuwen, 2001).

Based on the findings of the result, manufacturers and user guide designers need to consider conducting user testing and readability assessments to identify and address the specific challenges that users encountered in understanding the user guides. Manufacturers and user guide designers

may consider conducting user testing and readability assessments to ensure that user guides are comprehensible and that technical terms are annotated appropriately. This finding is consistent with the observation of Pedraz-Delhaes et al. (2010) that high-quality user guides must be characterised by excellently written text, understandable words, accurate information and reader friendliness. Accordingly, incorporating user feedback and iterative improvements in user guide design can enhance their effectiveness and make them more user-friendly.

A critical aspect of user guides is the presence of technical words, which serve to describe and explain the various features, components, and functions of the appliances. The study delves into the significance and challenges of technical terminologies in user guides, highlighting the importance of striking a balance between technical precision and user-friendliness to ensure effective communication. Figure 9 captures the results of the analysis.

Figure 9: Some of the words in the user guide were technical.

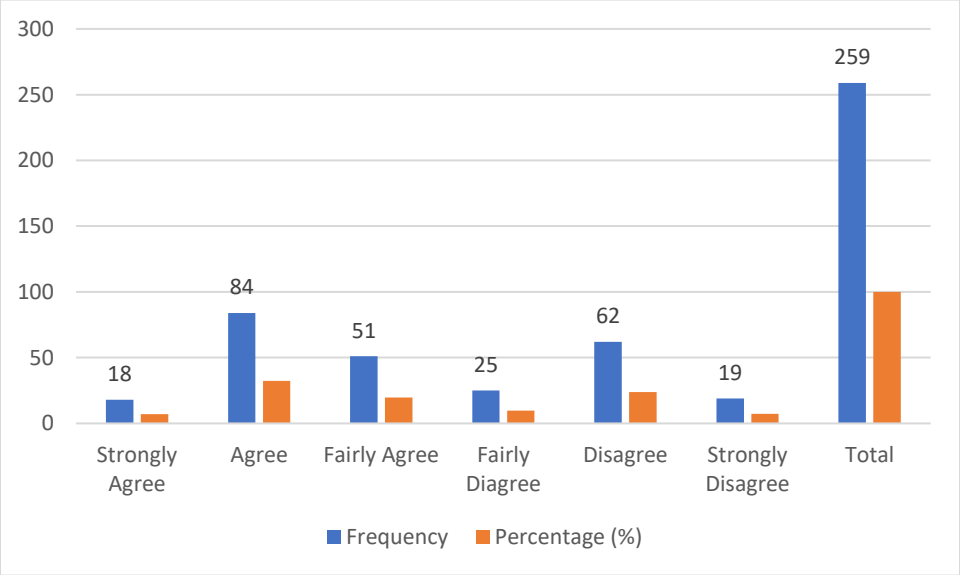


The results of the analysis indicate that 240 respondents, representing 92.7% agreed that the user guides contain technical words. The remaining 7.3% disagreed that the user guides contained technical words. The overwhelming agreement among 92.7% of respondents that user guides contain technical words indicates that the majority of users perceive the presence of technical terminology in user guides. This implies that user guides are often designed to include specialised vocabulary to accurately describe product features and operations. The high agreement rate underscores the importance of clarity and effective communication in user guide design. While technical words are necessary to convey precise information, it is essential that user guides strike a balance between technical accuracy and user-friendliness. User guides should be designed to accommodate users with varying levels of technical knowledge. The 7.3% of respondents who disagreed that user guides contained technical words may indicate that, for some users, the

technical terminologies in the user guides may not have been readily apparent or may have been well-explained and understandable, probably due to their background. This finding may serve as valuable feedback for manufacturers and technical writers.

Another theme that emerged from the section is the impact of the use of technical words in user guides on comprehensibility. The results reveal how the presence of technical terminologies in user guides can influence user comprehension. Figure 10 presents the analysis of the results.

Figure 10: The technical words affected my understanding of the user guide.

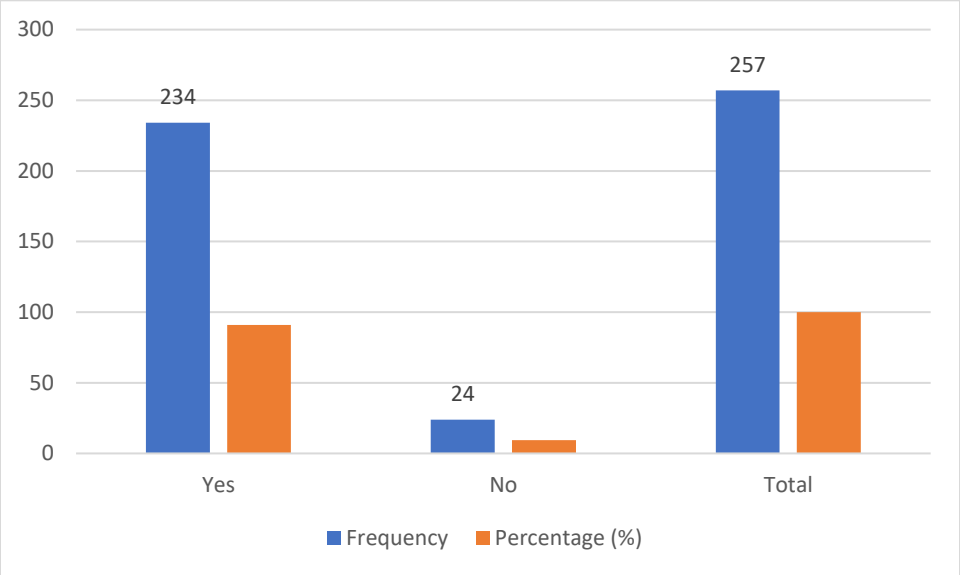


Approximately 59.07% of respondents expressed that technical words in the user guides had an adverse impact on their understanding. This suggests that the presence of technical terminologies posed challenges for a significant portion of users. A substantial minority, around 40.92%, stated that technical words did not affect their understanding of the user guides. These respondents likely had a sufficient grasp of technical language or found the explanations of the user guides adequate. The findings show that the use of technical words in user guides can be a barrier to user comprehension for a majority of respondents. This underscores the need for user-friendly explanations or clarifications for technical terms. This corroborates the argument of Wand and Wang (1996) that the information content of the user guide must be correct, unambiguous, complete and meaningful to the patrons of the products. The minority who reported that technical words did not affect their understanding may indicate that the user guides effectively provided explanations or context for technical terminology. It could also be an indication that these users have technical background, looking at the characteristics of the research respondents.

Concerning the availability of images in the user guides of home appliances, a substantial majority of respondents, approximately 91.0%, stated that the user guides they used contained images. This implies that visual aids are a common feature in the user guides, which can enhance user

understanding and usability. A smaller proportion, around 9.0%, indicated that the user guides they used did not have images.

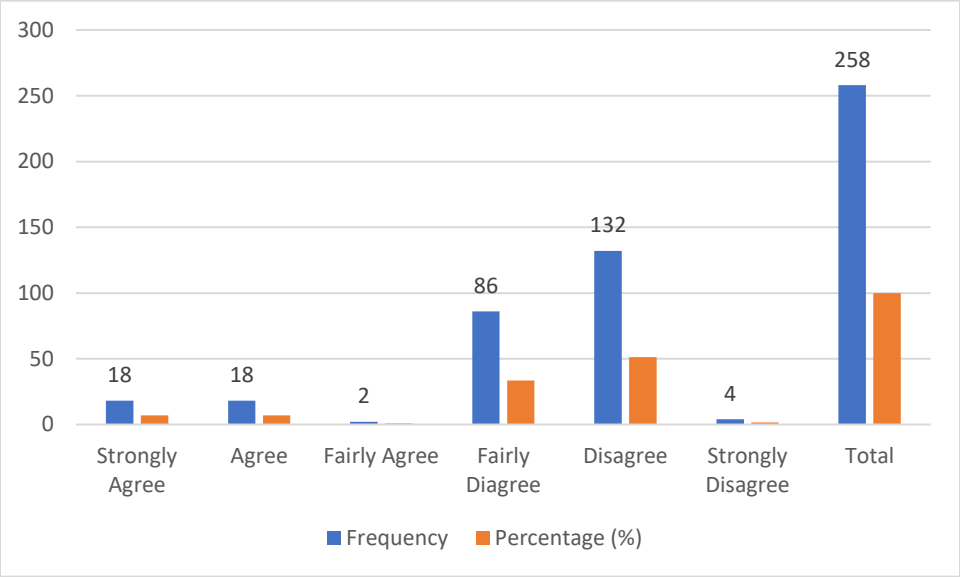
Figure 11: The user guides have images.



The analysis indicates that the majority of user guides in use, as reported by respondents, incorporate images as visual aids. This aligns with best practices in technical communication, where visuals can significantly enhance user comprehension. Guillemette (1990) contends that the informational content of a user guide should present a vivid description of the product comprehensibly. Developers of user guides that do not contain images may consider the inclusion of relevant visuals, especially for complex installation processes or when dealing with appliances with intricate components (Smart et al., 2001).

The indication of the availability of images in user guides triggered the need to ascertain the effect of these images in enhancing comprehensibility of the information contained in the user guides. In this regard, the results revealed that a significant majority, approximately 86.0% of respondents, indicated that the images in the user guides did not contribute to their understanding of the information. This suggests that, for the majority, the visual aids may not have been effective or sufficiently clear. A smaller proportion, around 14.0%, indicated that the images in the user guides assisted them in understanding the information they contained. These respondents likely found the visuals to be clear and helpful in comprehending the information they contain. Figure 12 captures the results of the analysis.

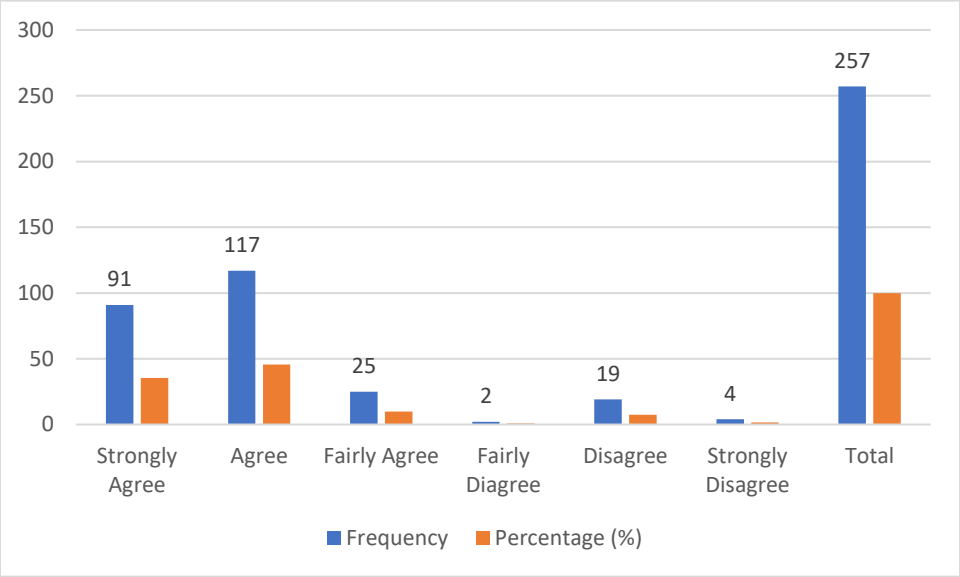
Figure 12: The images helped in understanding the information in the user guide.



The findings reveal that, for a significant portion of respondents, the images in the user guides may not have been as effective as intended in aiding understanding. This underscores the importance of not only including images but also ensuring their clarity and relevance. This observation is consistent with the argument of Kress and van Leeuwen (1996) that visual elements such as colour, line, shape, and spatial arrangement have symbolic meanings, contributing to the overall communicative effectiveness of messages. The minority who found the images helpful in understanding the information indicated that visual aids could be beneficial when they are well-designed and align with the content of the user guides.

One of the themes that emerged concerning the availability of images in the user guides is the whether the visual aids in the user guides are adequately and appropriately labelled. The findings offer valuable perspectives on how survey participants interpreted the inclusion of labels in images featured in user guides and the potential influence of such labels on user comprehension. The results show that majority, approximately 90.3% of respondents, reported that the images in the user guide were labelled. This indicates that, for the majority, the images were annotated using descriptive labels. A smaller proportion, around 9.7%, stated that the images in the user guide were not labelled. These respondents likely encountered images without accompanying descriptions or explanations. The results of the responses are summarised in Figure 13.

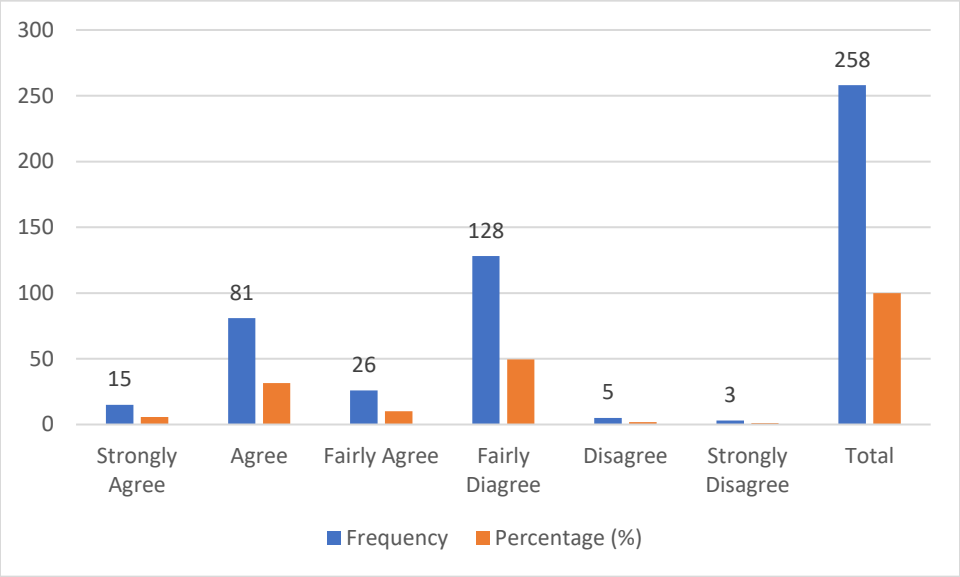
Figure 13: The images were labelled.



The results highlight that, for the majority of respondents, the user guides included labelled images, which can be beneficial in providing context and aiding understanding. This finding implies that manufactures of the home appliances adhere to the suggestion of Gemoets and Mahmood (1990) that user guides need to contain both written and visual explanations to ensure consumers' holistic understanding. The minority who encountered images without labels may suggest that some user guides may benefit from clearer image descriptions to ensure users understand the visual content. This finding corroborates the argument that text is not the only mode of communication (Herbes, Beuthner and Ramme, 2020; Robinson, 2019; Osman, Pervin and Gülmüş, 2019; Kress and van Leeuwen, 1996).

The study sought to determine the communicative effectiveness of the labels associated with the images. A majority, around 53.7% of the respondents, indicated that the images did not communicate effectively in understanding the user guides; thereby impeding ability of the images in helping the users in the installation and operation of the home appliances. This hints that a significant portion of users did not find the visuals helpful in aiding their understanding. This finding is in consonance with the finding of Herbes, Beuthner and Ramme (2020, p. 268) that patrons of products "sometimes had problems in interpreting labels correctly." A minority, approximately 47.3% of respondents, reported that the images in the user guides effectively communicated understanding. These respondents found the labels on the visual aids comprehensive, rendering the images helpful in facilitating the comprehension of the user guides. Figure 14 displays the outcomes derived from the analysis.

Figure 14: The images communicated effectively.



The finding reveals that, for the majority of respondents, the images in the user guides were perceived as ineffective in facilitating understanding. This raises questions about the quality, relevance and clarity of the visual content. The minority who found the images effective in communicating understanding indicate that well-designed and contextually relevant visuals can enhance the effectiveness of user guides (Herbes, Beuthner and Ramme, 2020; Kress and van Leeuwen, 2001).

Conclusion

User guides serve as invaluable resources for users grappling with the installation and operation of home appliances. This paper examines their role as self-teaching aids, taking into account recent survey data. We delve into the significance of these user guides in light of user responses, exploring how they impact user experience, self-sufficiency, and safe and efficient use of home appliances. The data collected offer critical insights into users' experiences with these user guides, such as the prevalence of user guides accompanying home appliances, the extent of their utilisation during installation, and whether users sought external help. These findings underscore the practical significance of user guides in real-world situations. Additionally, the findings reveal varying user perspectives on the clarity and effectiveness of user guides, particularly regarding the presence and labelling of images, and the impact of technical terminologies (Herbes, Beuthner and Ramme, 2020; Sandez et al., 2023). These insights highlight areas that warrant attention in the design and content of user guides. By offering clear instructions, enhancing the clarity and relevance of images, and simplifying technical language, user guides can empower users to independently navigate appliance installation and operation (Rektor et al, 2023). As indicated by Pedraz-Delhaes et al. (2010), the language quality of the document affects document appraisal and evaluation of

both the product and the manufacturer. The results also underscore the importance of user-centric designs, incorporating feedback, and iterative improvements in creating effective user guides.

Limitations and future directions

In spite of the insight the findings of the research provide, the study is limited in its dependence on self-reported data obtained through Google Forms, which could be subject to participant bias and imprecisions. Additionally, the study only focuses on users' experiences with home appliances during installation and operation, neglecting the disposal of the appliances, which is a crucial stage of a product's life span. Also, the study primarily investigates user perspectives of actual users of home appliances, excluding the views of potential users who may have decided against purchasing the product due to perceived issues with product user guides.

A more diverse methodology that include observational studies or interviews could be employed by researchers in future studies as the current study only adopted a self-reported data. This may offer a more comprehensive understanding of user experiences regarding home appliance user guides. Furthermore, prospective researchers may investigate the long-term effect of user guides on home appliance user satisfaction, considering factors such as durability, reliability, and ease of troubleshooting over extended periods of appliance usage. Again, examining the cultural and linguistic differences of users of home appliances on the comprehension and usage of user guides may direct designers of user guides in developing more user-friendly user guides to accommodate the diverse user demographics. Lastly, longitudinal studies that track changes in user guide design and how they impact user experiences could help determine best practices in user guide production and usage.

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