Qualitative Analysis of the SNS Role in Information Avoidance from the Perspective of S-O-R (Stimulus-Organism-Response) Theory

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Abstract. Today, many people and organizations use SNS to disseminate information regarding COVID-19. However, information avoidance can still occur if users refuse to receive the information. Although previous research on information avoidance has been conducted, this research brings novelty by showing that the SNS design leads to information avoidance from the opinion and human behavior perspective. Therefore, this study analyzed the role of SNS in information avoidance from the perspective of SOR theory qualitatively. This research was conducted in Indonesia, which has the most significant SNS users on subjects who feel the impact of information overload and anxiety. It aimed to comprehend the phenomenon's effect on SNS users and the factors driving information avoidance. This research provided two contributions from the thematic analysis process. The first was to show the conceptual model of information avoidance related to the factors driving information avoidance and information anxiety from the perspective of SOR theory. The second was to provide knowledge about the impact of SNS on user behavior.

Keywords: SNS, Information Overload, Information Anxiety, Information Avoidance, S-O-R theory

1 Introduction

SNS (social networking site) is a web application to fulfill information needs in various countries. One of the ways to disseminate information related to the COVID-19 situation is through social networking sites (SNS). Government organizations and health institutions are also using SNS to share information about COVID-19 to reduce the outbreak's spread and provide insight into COVID-19 details [1]. It is because SNS is easily accessible to the public [2]. SNS is a web application that forms a communication network between users in text, images, and photos [3]. Indonesia is the 3rd largest country for using SNS, such as Instagram, Facebook, and YouTube [4]. The SNS feature fulfills the need for remote communication and creates forums for sharing information and posts.

However, the information contained in the SNS is not necessarily conveyed because there is an information avoidance phenomenon. Previous research [1] showed that information avoidance occurs due to information overload and information anxiety. These studies suppose that there is a contribution from the SNS characteristics and
features to making information avoidance decisions. This supposition is due to the complexity of the SNS features, which eliminate usability [5].

The information received causes the user to refuse or avoid [6]. Not many studies explain the SNS design that causes information avoidance. Research on information avoidance behavior has been conducted at [2], [7], dan [8]. Like Soroya et al. (2021), this research is limited to information avoidance from various other sources of information, namely the web, newspapers, and SNS. Another study by Song et al. (2021) explained the motivation for information avoidance of COVID-19, as well as research by Guo et al. (2020), which presents fatigue as an intermediary for the impact of information overload that causes information avoidance. Unfortunately, these studies have not included SNS and feature overload as sources of information causing information anxiety. This is important during the COVID-19 and post-COVID-19 pandemic because most communication utilizes SNS. This study examined the information avoidance phenomenon due to information overload and information anxiety.

This research described the conceptual model of the SOR (stimulus-organism-response) theory and described interactions to predict SNS user experience [8]. This conceptual model is a strategic scheme to make people aware of the occurred phenomena. This research aims to investigate the question, “How does SNS influence users to avoid information?” The exploratory process used thematic analysis through interviews with 11 participants by purposive sampling. Data collection and review used the NVivo 12 application. This research contributes to explaining the behavioral impact of SNS users from the interactivity point of view (human and computer communication) when they use SNS and information avoidance decisions.

2 Methodology

2.1 Design

This research used a qualitative analysis approach with thematic analysis [9], in which the researchers investigated phenomena involving the feelings and behaviors of participants. The data was collected by interviewing the informants with questions related to the research. The variables for making interview questions consist of SNS characteristics, information relevance, information equivocality, information overload, information anxiety, system feature overload, and information avoidance. Each variable had two to three structured questions developed through interviews to dig for more profound information.

2.2 Participants

Interviews were conducted with 11 SNS users as a participant. The selection of participants can affect the outcome of the interview. Participants were selected based on research criteria using the purposive sampling technique. The purposive sampling technique aims to provide researchers with an overview to choosing interviewees who can give insight [10]. The participant criterion was an active SNS user interested in COVID-19 information and who experienced information overload. This research focused on a population of male or female SNS users aged between 20-50 years who comprehend and ensure positive information on SNS. Data collection was stopped after the data collection process was saturated. It was characterized by data that was proven and declared, so the data appeared saturated [11].

2.3 Procedure

The initial procedure was to conduct a pilot interview with a participant with a semi-structured interview. After the results were approved, the researchers conducted online interviews. Before conducting interviews, the researchers arranged an interview list in a schematic and semi-structured way so that the researchers could focus.
Participants were asked to answer ten questions as critical questions. Interviews were conducted in less than 60 minutes, after which the discussion results would be recorded and transcribed into text form. These questions covered the use of SNS and the impact of information overload and information anxiety. The researcher changed the word SNS to social media in the interview questions. Semi-structured interviews also provided open-ended questions to reduce bias [12]. The key questions were followed by clarifying and exploratory questions to explore more data, such as, “What was your experience?”. This open-ended question provided more in-depth data [13]. The inquiry ended with reconfirmation if there was missing or unclear data.

2.4 Data Analysis
The qualitative analysis concept in this research was thematic analysis to identify, analyze, and interpret the data in patterns from the six process phases [14]. Data analysis was adapted from [15], which described two phenomenological analyzes and thematic analysis, including (1) organizing the data, (2) rereading the data, and (3) highlighting the code or text label of a sentence or phrase to describe the content, (4) using NVivo 12 software to reduce data from the coding process based on transcript data into more general themes and categories, (5) defining themes and describing events, and (6) summarizing the code as a representation of information data to be analyzed and interpreted in the form of images, diagrams, and tables. The representation of thematic analysis was in the form of a conceptual model of SOR theory (Stimulus-Organism-Response). SOR theory in the thematic analysis was used to explain phenomena descriptively and provide new insights to understand a problem.

3 Results and Discussion
The focus of the research analysis was to find information avoidance experiences of SNS users and the impact of information overload and information anxiety. There were 11 male and female participants between 20 to 50 years old. The eleven participants were college students to workers who had more than one SNS account.

Table 1. Themes and category thematic analysis

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<th>NO</th>
<th>Theme</th>
<th>Category</th>
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<tr>
<td>1</td>
<td>Generate environmental stimuli perceived by SNS users;</td>
<td>SNS causes information relevance and information equivocality; SNS produces unnecessary features; The SNS users’ situation due to information overload; The SNS users feel anxiety; Support avoidance behavior; Support feature usage behavior;</td>
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<tr>
<td>2</td>
<td>The emotional situation of SNS users;</td>
<td></td>
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<tr>
<td>3</td>
<td>Representation of SNS user action</td>
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Table 1. shows the overall themes and categories. Three themes (6 categories) explained thematic analysis through the Nvivo 12 application. This research adapted Creswell’s thematic analysis research for the information category about information avoidance combined into three themes (with 6 categories).

A. theme I: Generate environmental stimuli perceived by SNS users;
The 11 participants as SNS users said that social networking sites were a medium for communicating and getting information, one of which was COVID-19 information.
The effect of SNS characteristics, information relevance, and information equivocality were themes that explained environmental stimuli experienced by SNS users.

**SNS causes information relevance and information equivocality.** An environmental stimulus can cause the appearance of SNS characteristics and affect the information quality, such as the information relevance and information equivocality. Several participants said that SNS characteristics are availability, searchability, persistence, replicability, and scalability. An environmental stimulus obtained from the SNS characteristics to influence individual actions described in the statement:

“If I can’t find new information, I’m not looking for new information on social media, but I’m also looking for information via Instagram Stories. Of course, the picture graphics are promising on social media, the design is communicative, and it’s like campaigns from influencers, asking for a lot of information like that.”

SNS provides various kinds of information (availability) in images and videos, including COVID-19 information. Participants felt the most was that SNS provided the latest news, one of which was COVID-19 information.

“I think it is appropriate because when I look for covid data or the latest news about covid, I need some data and indeed reliable data.”

The 9 participants said that SNS simplified finding and obtaining information. There were any social networking sites that users needed. It made SNS the primary source of information.

“Yes, like a video showing information that suddenly died somewhere that was reported because of covid. When I saw it in the comments, it turned out that it was an incident and not an event at that time. I think the information that should be in social media is the first to contain data, such as where it is located, when it happens, it must be included if it takes it from where.”

Few participants realized that something posted on social media would remain as long as they did not delete or edit the post. In addition, social networking sites also had weaknesses related to the clarity of information.

**SNS produces unnecessary features.** SNS features will be continuously updated to attract interest and improve user experience. Some participants said that SNS had complex features even though it simplified users to obtain information. Environmental stimuli from the SNS feature were shown through the following statements:

“I think the features on social media are excessive because it becomes like confused where to focus what is the use of this feature if before used just to share pictures or videos if now you can sell story reels so like on the other hand help, but also make confused the focus because too much is displayed”

There were 9 participants who said that social networking sites provided many features. It affected feature complexity and the loss of critical functionality.

“For example, Instagram has reels feature placement right in the middle so often wrong if you want to make a story right there is still minor adaptation, actually useful just not used to it.”

There were 7 participants who stated that the SNS feature was problematic and complicated, so users had to adapt. Overload features also cause users not to understand the function and location.
B. Theme II: The emotional situation of SNS users;

The 11 participants stated that the use of social networking sites had an emotional impact. They felt negative because the information received exceeded their capacity, which caused anxiety.

**The SNS user’s situation is due to information overload.** A social networking site can be used as an information source to obtain quality and relevant information. However, it can also contain information equivocality. Social networking sites have the impact of information overload due to feature updates. It affects the information capacity received by the user gets. The following were some of the participants opinions regarding this thing:

“Yes, because social media can be accessed by all people from all walks of life and people today are also free to think he wants to do this. There are no rules in social media. Hence, the information is also very much, but the truth is not yet known.”

All participants agreed that social networking sites had information overload. Users are free to express their opinions, and there are no fixed rules for creating and sharing information on SNS. It affected overload information capacity and affected the information quality.

“Maybe the netizens’ response and how informative accounts such as uesfeed or folkative share this information. So from there, because of the reposted news, it continues to be news, plus comments from netizens who deny it. Information from social media is questionable because anyone can upload information and speak up on the right social media.”

The 8 participants said that SNS contained a lot of information equivocality. In addition, duplication of information also affected the information quality (information relevance and information equivocality). Even though there was a lot of relevant information, users were still having trouble receiving the information. Information equivocality was also widely circulated due to its inconsistency with reality.

“Moreover, in WhatsApp, for example, a forwarded video often has a notif on it. So I think if it turns out that this information has been shared many times, it automatically becomes uncontrollable. But some are overloaded. Maybe I mentioned it on Instagram. Maybe the one in the explore was before it contained a lot of information that we don't often see and not often looking for.”

Few participants said that social media features had the effect of information overload. However, this statement was very relevant to the state of SNS users. For example, the forward or repost feature had the effect of information overload and information equivocality, so information was ignored.

**The SNS users feel anxiety.** SNS users often feel anxious or panic when receiving frightening or overwhelming information. For example, users feel hassle and boredom when receiving and recognizing information.

“On Instagram, I’ve seen such scary headlines like "Be careful prepared yourself,” and then there are those who comment campaign about bad news. So many accounts deliberately create headlines to make people panic and increase their traffic.”

All participants said that they experienced anxiety due to SNS. The SNS timeline displayed irrelevant and unclear headlines. This situation created a state of information anxiety in the form of panic, worry, and being overwhelmed.

"I can't accept even the fear of thinking excessive thoughts because of my mental health. Sometimes my mental health is no longer okay, so I avoid information for my mental good."
The 8 participants admitted that information anxiety increased the burden on their minds, created an inability to receive information, and interfered with their mental health. However, anxiety was also caused by uploads of SNS accounts and the intensity of information from discussion forums.

“Many people do not know where the source of information is, the most unfortunate. I feel anxiety when all the information causes a lot of paranoia. If there is information spread on WhatsApp, there is information that died or some people need blood donation..”

The 8 participants said that the high-intensity group comment column in the SNS discussion forum caused anxiety and fear. The information exchange in SNS discussion forums also created confusion and duplication of information.

C. Theme III: Representation of SNS user action

All participants said that users could avoid or support the use of SNS. This decision was a consequence of receiving information on social networking sites.

Support avoidance behavior. Information avoidance is an effect of using SNS. One of the information avoidance reactions is information restriction and avoidance because the information affects and causes negative emotions (anxiety or panic). Moreover, it can change the user’s intellect. Users may stop information due to information bias, high intensity, and anxiety.

“I can also avoid bad information, repeated information, and information overload I will avoid. I prefer to limit disturbing information, so I choose to read the good news. Then I avoid information on social media that there is no government follow-up, such as dangerous drugs and vaccine information..”

All participants stated that they avoided information when they felt information overload and anxiety. This behavior was an attempt to avoid information overload and emotions by unfollowing certain accounts. Information avoidance is caused by the inability of SNS users to recognize information properly. Several participants stated that some of the COVID-19 information on SNS was less reliable. Users would misunderstand the fact if they did not avoid it.

“Because it's crowded and I can't choose which information is a hoax and which is not a hoax, which one to be afraid of when I feel mental can't accept it. so even fears and negative thinking like information Covid, I usually avoid that information.”

The 4 participants said that they did information avoidance due to information overload. Another statement said that they did information avoidance because of information anxiety. Users should avoid information that causes anxiety. Many participants did information avoidance (such as COVID-19 information). Thus, it could be concluded that users did not directly avoid information on SNS, but users did information avoidance when they had anxiety from information on SNS.

Support feature usage behavior. The many features of SNS attract the SNS users’ attention. All participants said that increasing SNS features increased SNS usage and interest in new features.

“Features in social media are more sophisticated because I am a Twitter user; there is a restriction feature and can filter to determine what we want to read.”

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The 9 participants said they were satisfied with the new features developed by SNS and felt the effective function of these features. One of them was to provide convenience for users to overcome information overload. Thus, users perceived feature overload as not a negative thing. However, they were also fascinated and interested in continuing to use it.

"The effect on the brand image where we see social media itself, for example, I see WhatsApp have the easy use because it only has a few features, so the not kind feature user just opens it and use it, it doesn’t waste time."

The 9 participants also stated a tendency to use SNS features. They said that these features had functionality, provided a new experience, and provided satisfaction when used these features.

D. Conceptual Model of SOR Theory

The Stimulus-Organism-Response (SOR) theory was developed by Mehrabian and Russell (1974) from the environmental, psychological theory of SOR (Stimulus Organism Response). This theoretical model is used to recognize human behavior, especially consumer behavior and human behavior during COVID-19, in several studies [1], [7], [16]. The methods include analyzing and interpreting data into findings that become a story from the analysis process so that theoretical perspectives emerge and are clear [17].

The qualitative analysis process in this study found a new perspective, namely three themes that explained observations from interviews that explained the S-O-R theory in the form of responses in the state of information avoidance and feature acceptance phenomena. The results of the decisions of SNS users are in the form of responses obtained from the stimulation area of a digital technology that produces encouragement for individual behavior such as information avoidance. The scope of stimulation will not directly have a personal decision, but there is an intermediary as a form of emotion or satisfaction felt in a condition. Based on the analysis results, theme 1 explains the stimulus area. That is, it produces environmental stimuli that SNS users from participant observations feel. Various qualities will emerge, such as relevant information or ambiguous information, explaining SNS as a source of information. Not only in terms of information, but new features are also constantly updated so that very varied and the complexity of SNS will inevitably affect user actions, which is called system feature overload.

![Figure 1 Conceptual Model]
Furthermore, theme 2 describes the emotional area of the stimulus area that will influence action. SNS characteristics and system feature overload that they use will react to conditions felt by SNS users, such as information anxiety and information overload from using feature activities and responding to information. Lastly, theme 3 describes the response area, namely, the representation of the actions of SNS users. There are two responses in response to the situation experienced by SNS users, namely avoiding information and limiting not reading information, called information avoidance, and the satisfaction of the features provided, giving a decision in the form of continuing to use the feature called feature acceptance.

Figure 1 explains the interpretation of thematic data analysis based on the SOR theory perspective, which consists of three areas. The conceptual model consists of three areas, namely; the SOR theory area, which states that the stimulus (S) is the influence of the SNS characteristics, and system feature overload which is correlated with the organism (O), the emotional state is information anxiety and information overload so as to produce a response (R) or information avoidance and feature acceptance.

This research found several essential findings to explain the effect of SNS design on information avoidance behavior. This research was about the SNS problem and the features overload that affect information overload and information anxiety so that it causes information avoidance. As already described, SNS characteristics and features overload stimulate users’ responses. The SNS characteristics produce information relevance and information equivocality. However, feature overload is a stimulus for SNS users to search for information and use SNS.

A stimulus produced emotions such as information overload and information anxiety related to research findings [18]. SNS made quality information and an information overload. Furthermore, feature overload also results in information overload. It was related to the research findings [19]. Features overload in SNS resulted in information overload for users. Information overload is related to the information anxiety of SNS users. Research Dai et al. [20] explained that uploads on SNS that are too intense produce duplication and anxiety so that users did acceptance or reject. Rejection was the information avoidance, and acceptance was the continued use of SNS features. Information avoidance is conducted when the user is anxious. It was similar to research by Soroya et al. [1] which explained that many information sources, such as the web, SNS, and newspapers, produce information overload, user anxiety, and information avoidance. Thus, the availability of mediators such as emotions caused information avoidance in SNS by users.

Thus, the SNS users’ behavior research can recommend to application designers to lighten the information load, create a simple and easy-to-understand system, provide supporting information (data and facts), and simplify users to filter or skim. In addition, the researchers hope that application designers can develop a visualization of a safer SNS design and create policy guidelines. It is hoped that stakeholders realize that the risk of SNS design causes information to be missed and not targeted, avoided, or even rejected. Based on the conceptual model from the SOR perspective, information and SNS features lead to information overload and information anxiety as a risk. This research can be used as a guide and point of view for application designers and users to realize the factors driving information overload.

4 Conclusion

This research aims to recognize the behavioral factors of SNS users during the COVID-19 pandemic in Indonesia. The research was conducted by validating two model frameworks from the perspective of stimulus-organism-response (SOR) theory and proving SNS characteristics and features overload lead to information avoidance and use
of features. This research concludes that stakeholder awareness is needed in disseminating information and using SNS features to realize SNS risks. It can result in mistargeting and information avoidance. In addition, this research provides broad insight for designers to develop powerful application designs by considering negative risks, such as information overload and information anxiety. SNS users need adaptation when using SNS to reduce information overload and information anxiety, so they avoid information avoidance.

This study indicates the significant contribution of the findings and proposes a conceptual model to explain the phenomenon of information avoidance in SNS. However, the limitations of the research become opportunities for further study. First, this research was conducted on more than one SNS. It requires a deeper investigation to explain the focus on one type of SNS. Second, this research was conducted on a limited population. Future research may explore the number of people participating so that the findings can capture personal experience. Third, other factors were considered to identify the effect of social overload due to high SNS activity. The researchers hope that the results of future studies provide a complete elaboration on the topic of SNS design.

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References
11 J. M. Morse, ‘Data were saturated...’ Sage Publications Sage CA: Los Angeles, CA (2015)