

SOCIAL COGNITIVE FRAMEWORK FOR SECURE
INFORMATION SHARING ON ISLAMIC NGO SOCIAL
MEDIA

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KUALA LUMPUR

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MEDIA**

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**DISSERTATION SUBMITTED IN FULFILMENT OF
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Social Cognitive Framework for Secure Information Sharing on Islamic NGO Social Media

Abstract

The use of social media technologies such as Facebook, Twitter, Wikis, WhatsApp, and so forth is becoming a trend nowadays. Professionals often use social media in social work as an information and communication tool. Most profit organizations use this technology to help their business. Non-profit organizations are also known as non-governmental organizations (NGOs) also benefit in many aspects from using this technology. This research focused on Islamic NGOs which addressed education as one of their social missions. This research aims to achieve three main objectives; 1) to identify factors that influence secure information sharing practices of Islamic NGOs in spreading social mission using social media; 2) to develop social cognitive framework for secure information sharing by Islamic NGOs in spreading social mission using social media; and 3) to verify social cognitive framework for secure information sharing by Islamic NGO in spreading social mission using social media. A quantitative method was used in this research to find out the relationship between Personal/Cognitive, Behavior and Environmental determinants through Social Cognitive Theory. It started with data collection from 73 of NGO members to find out the usage of social media in the NGOs. The data were analyzed using structural equation modelling (Structural Equation Modelling (SEM)) technique using Partial Least Square (Partial Least Square (PLS)). The results show high reliability of predicted variables with reliability score of more than 0.80, displaying average variance extracted (Average Variance Extracted (AVE)) exceeding 0.5, define adequate convergent validity of all the predicted variables developed in the conceptual framework. It was found that from hypothesis 2, the

behavioral determinant positively influences secure information sharing of Islamic NGOs through social media and from hypothesis 3, the environmental determinant positively influences secure information sharing of Islamic NGOs through social media. However, from hypothesis 1, it was found that personal/cognitive determinant does not positively influence secure information sharing of Islamic NGOs through social media. The social cognitive framework developed in this study shows the coefficient of determination (R^2) is 0.584 which indicates the significance of predictive accuracy.

Keywords: Secure information sharing, Islamic NGO, social cognitive theory

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Rangka Kerja Kognitif Sosial untuk Perkongsian Maklumat

Selamat oleh Media Sosial NGO Islam

ABSTRAK

Penggunaan teknologi media sosial seperti Facebook, Twitter, Wiki, WhatsApp, dan sebagainya menjadi popular pada masa kini. Golongan profesional sering menggunakan media sosial sebagai alat maklumat dan komunikasi untuk melaksanakan kerja sosial. Kebanyakan organisasi berasaskan keuntungan menggunakan teknologi ini untuk membantu dalam perniagaan mereka. Pertubuhan yang tidak berasaskan keuntungan yang juga dikenali sebagai organisasi bukan kerajaan (NGO) juga mendapat manfaat dalam banyak aspek daripada menggunakan teknologi ini. Penyelidikan ini memfokuskan kepada NGO Islam yang menjadikan pendidikan sebagai salah satu misi sosial mereka. Kajian ini bertujuan untuk mencapai tiga objektif utama; 1) mengenal pasti faktor yang mempengaruhi amalan perkongsian maklumat selamat NGO Islam dalam menyebarkan misi sosial menggunakan media sosial; 2) untuk membangunkan rangka kerja kognitif sosial untuk perkongsian maklumat yang selamat oleh NGO Islam dalam menyebarkan misi sosial menggunakan media sosial; dan 3) untuk mengesahkan rangka kerja kognitif sosial untuk perkongsian maklumat yang selamat oleh NGO Islam dalam menyebarkan misi sosial menggunakan media sosial. Kaedah kuantitatif digunakan dalam kajian ini untuk mengkaji hubungan antara faktor kognitif, perlakuan dan persekitaran dalam Teori Kognitif Sosial. Pengumpulan data daripada 73 responden daripada ahli NGO telah diambil. Selepas itu, data tersebut dianalisis menggunakan kaedah pemodelan persamaan struktur (Structural Equation Modeling (SEM)) dengan kaedah Partial Least Square (Partial Least Square (PLS)) menggunakan Teori Kognitif Sosial. Keputusan menunjukkan kebolehpercayaan yang tinggi daripada pemboleh ubah yang diramalkan

dengan skor kebolehpercayaan lebih daripada 0.80, memaparkan varians purata yang diekstrak (Purata Varians Extracted (AVE)) melebihi 0.5, menentukan kesahihan konvergen yang mencukupi bagi semua pemboleh ubah yang diramal yang dibangunkan dalam kerangka konseptual. Didapati bahawa daripada hipotesis 2, penentu tingkah laku secara positif mempengaruhi perkongsian maklumat selamat NGO Islam melalui media sosial dan daripada hipotesis 3, penentu alam sekitar secara positif mempengaruhi perkongsian maklumat selamat NGO Islam melalui media sosial. Walau bagaimanapun, daripada hipotesis 1, didapati bahawa penentu peribadi/kognitif tidak mempengaruhi secara positif perkongsian maklumat selamat NGO Islam melalui media sosial. Kerangka kognitif sosial yang dibangunkan dalam kajian ini menunjukkan pekali penentuan (R^2) ialah 0.584 dan ini menunjukkan adanya kepentingan ketepatan ramalan.

Kata kunci: Perkongsian maklumat selamat, NGO Islam, teori kognitif sosial

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LIST OF SYMBOLS AND ABBREVIATIONS

NGO	:	Non-governmental organization
SEM	:	Structural Equation Modelling
PLS	:	Partial Least Square
AVE	:	Average Variance Extracted
RSS	:	Really Simple Syndication
AJAX	:	Asynchronous JavaScript
IT	:	Information Technology
ICT	:	Information & Communication Technology
SNS	:	Social Networking Sites
BD	:	Behavior determinant
CD	:	Cognitive determinant
ED	:	Environmental determinant
IMP	:	Impact

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CHAPTER 1

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CHAPTER 1: INTRODUCTION

1.1 Background and motivation of research

In the cyberworld of the World Wide Web, there is one term that has been used since 2004 called Web 2.0. It is a platform whereby all users can modify and utilize continuously in collaborative form, no longer created and published individually. In Web 1.0, there were personal web pages, Encyclopedia Britannica Online, and in Web 2.0 they are replaced by blogs, wikis, and collaborative projects. Web 2.0 also has Adobe Flash (using animation, interactivity, and audio/video streams to web pages), RSS (Really Simple Syndication, a family of web feed formats used to publish frequently updated content, such as blog entries or news headlines, in a standardized format), and AJAX (Asynchronous Javascript, a technique to retrieve data from web servers asynchronously, allowing the update of web content without interfering with the display and behavior of the whole page).

Web 2.0 has made users more engaged in the virtual world. Users did not just be passive readers, but they could also contribute their ideas or communicate with others using social media. Starting from the Usenet, a worldwide discussion system created by Tom Truscott and Jim Ellis from Duke University, by 1979, these technologies allowed users to post public messages. When the internet grew to high-speed access, social networking sites became big as led to the creation of MySpace in 2003 and Facebook in 2004. The contribution and addition in the social media world made users have been in “virtual worlds” as they joined and contributed in these computer-based simulated environments inhabited by three-dimensional avatars.

Applications such as collaborative projects (e.g., Wikipedia) and blogs score lowest in terms of social presence and media richness, as they are often text-based, thus only allowing for a relatively simple exchange. Content communities such as YouTube and social networking sites such as Facebook which enable the sharing of pictures, videos, and other forms of media in addition to text-based communication score the next level. Meanwhile, replication of all dimensions of face-to-face interactions in a virtual environment such as virtual games and social worlds (e.g., World of Warcraft, Second Life) are on the highest level. At the same time, about self-presentation and self-disclosure, collaborative projects usually score lower than blogs, as collaborative projects tend to be focused on specific content domains. Besides that, social networking sites allow for more self-disclosure than content communities. Meanwhile, virtual social worlds require a higher level of self-disclosure than virtual game worlds.

The number of internet users recorded increased every year. Based on statistics provided by Kemp (2021), the number of internet users around the world is showing rapid growth. Figure 1.1 below shows there was a 7.83 billion total population around the world at the start of 2021 and it seems like it has had rapid growth since the start of 2020. The number of internet users rose every year until reaching a total of 4.66 billion towards the end of the year, showing an increment of 59.5%. Total numbers of 4.20 billion from those that are active users of social media. It shows that users of social media increase every month and are now equivalent to more than 53 percent of the world's total population. Despite privacy and security issues in social media, the latest data shows social media growth is accelerating. People are using social media is increasing every day.

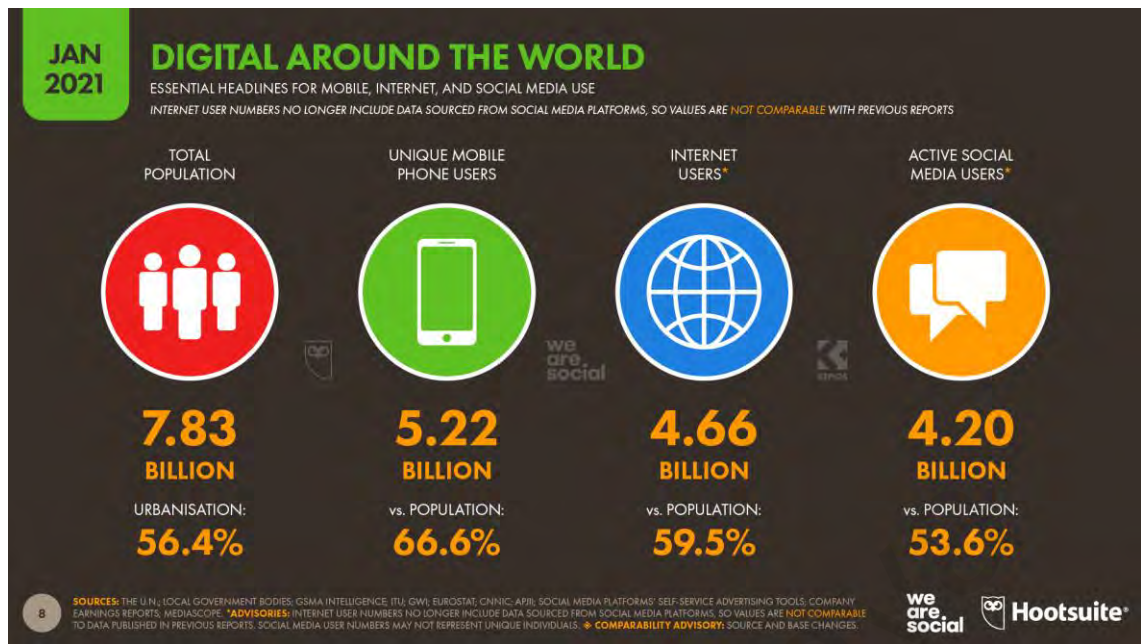


Figure 1.1: Digital around the world in January 2021

Figure 1.2 below shows that social media usage continues to grow among a variety of users and organizations, with active user accounts now equating to roughly 53.6% of the world's population (Kemp, 2021). More than 1.3 million new users joined social media every day during 2020, on average, the same as roughly 15½ new users every single second. Nearly 100% of total social media users are accessing via mobile shows that social media is widely used through mobile.

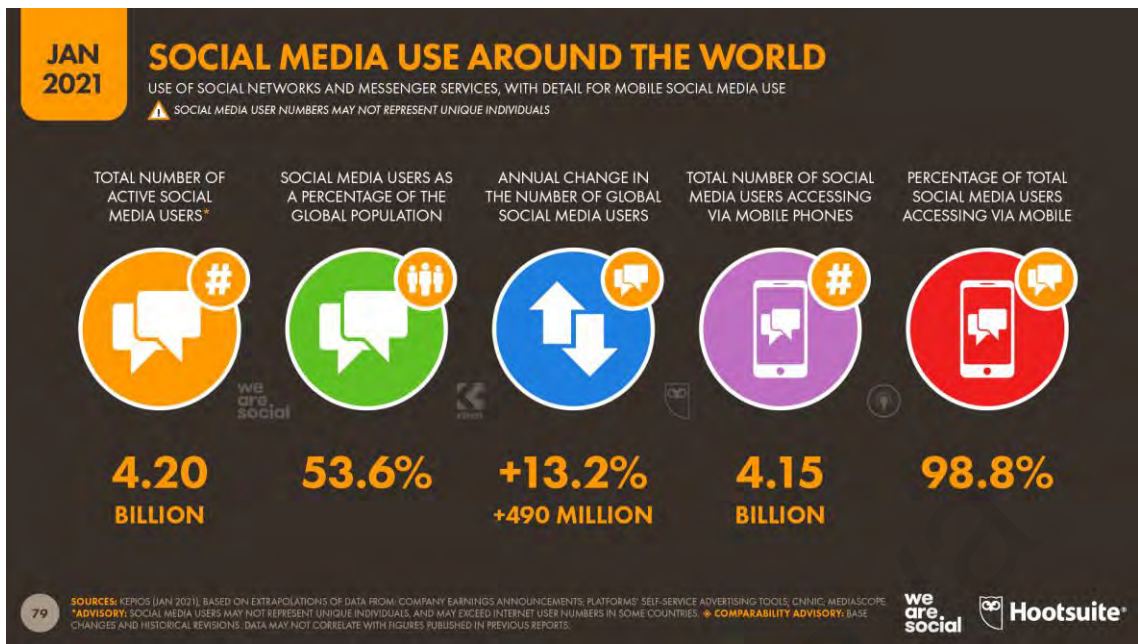


Figure 1.2: Social media overview

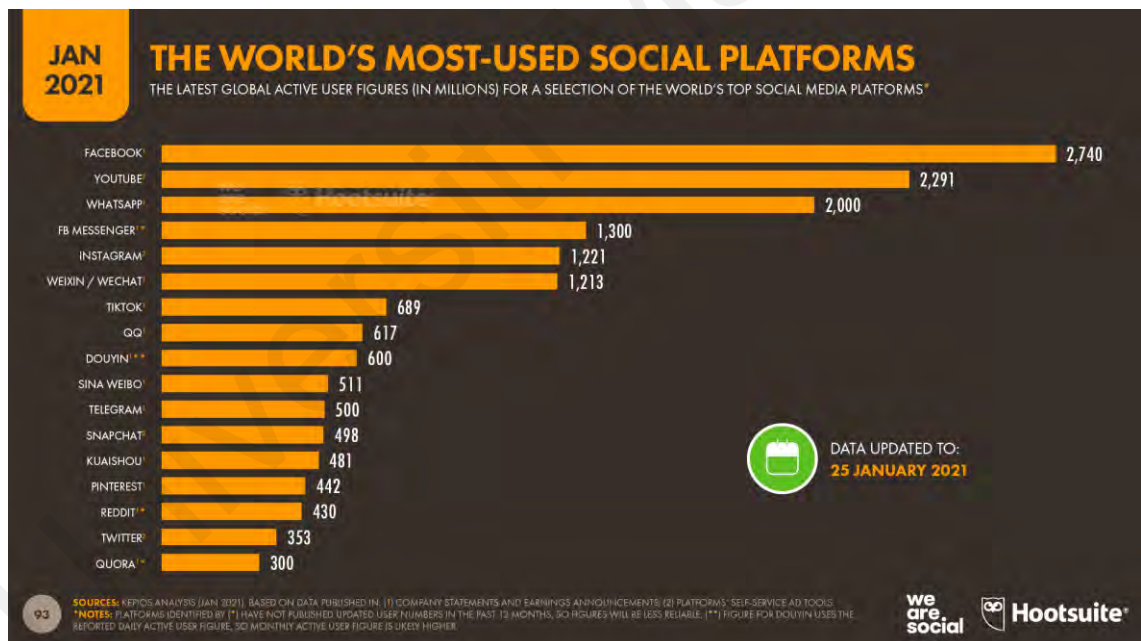


Figure 1.3: The world's most-used social platforms

In Figure 1.3, the statistics show Facebook as the most popular mobile app used by people and become the first in statistics. This is likely as Facebook becomes one of the best communication platforms to send and share information that people need to use in daily life, anytime, anywhere. Beside Facebook, another platform of social media that is

focused in this study is WhatsApp. From this figure, WhatsApp is at third in line in the statistics.

1.1.1 Social media to individuals and organizations

The use of social media has been widely used by both profit and non-profit based organizations. The benefits of social media, allow users to share information, communicate, network, and interact with each other (Rose, 2011). Not only for personal uses, but people also use social media for the benefit of their organizations. Meanwhile, NGOs use social media services and mobile messengers as part of their activity in completing their social mission. Besides that, they can also promote change in communities, as communication via social media can get through at a very low cost. (Lovejoy & Saxton, 2012).

Even though there are many NGOs in Malaysia, the focus of this study is on how Islamic NGOs use social media services to complete their social mission by disseminating information between them or sharing knowledge between them, and also how this social media can secure their information (Rose, 2011). Theoretically, the social mission of Islamic NGOs would portray different types of activities and consequently different impacts in utilizing social media. In the spirit of Islam, community activities focus on poor and disadvantaged groups and human development, especially related to education.

1.1.2 Security in social media

Security means freedom or protection against unwanted and potential threats from external forces. Security is perceived in relation to the features of a system, that determine the reliability and operational efficiency of the system in the event of a security incident (Szczepaniuk, Szczepaniuk, Rokicki, & Klepacki, 2020). Security may include persons and their social groups, objects and institutions, ecosystems, and any other entity or phenomenon vulnerable to unwanted conditions from the environment. The behavior of sharing their ideas, activities, statuses, and current location using their social media account could cause several risks and security threats. Thus, social media security and privacy are often discussed, especially in social media (Khidzir, Mat Daud, Ismail, Abd. Ghani, & Ibrahim, 2018). The number of people using social media has been increasing day by day. People can attack other people through their own personal computer networks.

The rapid growth of social media accounts is vulnerable to security risks and threats to users and their organizations. A study by Ponemon (2011) surveyed 4,640 IT and IT security practitioners in 12 countries regarding social media security issues. According to the report, more than 50% of respondents responded that due to their use of social media, there was an increase in malware to their systems. In the meantime, about 63% of respondents said that social media in the workplace exposed a serious security risk to their organizations. Nevertheless, social media is open, and everyone can use it, but there are certain features that provide safety for users. For example, some social media platforms and social mobile applications, such as Facebook and Whatsapp, allow their users to set the privacy level when they want to go online, and they can hide themselves from their friends in some features if they don't want to share information to everyone. There are

also features that can be set to make the account visible to who they want to see it. Individuals and organizations should apply security and privacy functions when they use any social media.

1.1.3 Social Cognitive Theory

This research integrates media attendance within the framework of Bandura's (1986) Social Cognitive Theory. Social Cognitive Theory (SCT) proposes that the environment, behavior, and personal/cognitive factors all interact and are reciprocal to each other (Laranjo, 2016). Related studies show that the usage of social media in an organization can be analyzed based on social cognitive determinants (Khang, Han, & Ki, 2014). NGO members are using social media for their benefit and this act influences their surrounding environment. Their thinking affects their behavior on social media usage. Human behavior has often been discussed in which behavior is shaped and controlled either by environmental influences or by internal dispositions, which is in terms of unidirectional causation. The personal/cognitive, behavior and environment are three causal factors that are reciprocal and related to each other.

1.2 Problem background

Social media is an important medium of communication between NGO members. However, there are also some significant drawbacks, especially when it comes to security and data management (Diaz, 2018). Personal data management and security go beyond the security features provided on social media platforms. When there is engagement with a social media vendor, they often give them access to data, which includes internal data

between the organization and data collected from external sources. This information could include pictures of the NGO members, or constituents posted on Facebook, individual contact, money-related information, daily experiences shared, as well as any opinion on certain matters.

Information validity (Jordan, 2018) is another issue that is a disadvantage if being misused in social media posts by NGOs. Many users are sharing their information based on their own opinion or creation or information forwarded from others. This wide sharing is something that we cannot be sure of its reliability. Sharing information without checking the validity of the source of the information poses a security threat. We are not sure that the information is from the right source. The worst case could involve slandering, which is bad for any individual or organization.

Mistakes in posting information (Das, & Sahoo, 2011) also can become a serious issue. For example, when NGO members get some messages, sometimes they tend to forward the messages to other people. The messages were sent to the wrong person without careful checking. This can lead to misunderstanding and misinterpretation of the messages especially if the message is sensitive or confidential to the reader. Sometimes, the messages received by the wrong person can be manipulated. So, any important messages should be filtered by forwarding and sent to the one receiving it.

Social media usage by NGO members comes from a few factors and influences other factors also. The personal data management of the NGO members, the way information is used, shared and perceived in social media, and also the risk of information security threat in using social media has been identified as reciprocal factors contributing to impact

of security in using social media. Thus, social cognitive theory has been identified as the basis of the study, since cognitive/personal determinants, behavior determinants and environmental determinants are reciprocal factors in the use of social media by NGO members.

1.3 Research objectives

This study aims to explore the use of social media platforms and the secure information sharing through social media in helping NGOs perform their social missions. As cognitive thinking, behavior, and environment are all involved in social media usage in an organization, thus Social Cognitive Theory forms the basis of our study. The objectives of this research are as follows:

1. To identify factors that influences secure information sharing practices of Islamic NGO in spreading social mission using social media.
2. To develop social cognitive framework for secure information sharing by Islamic NGO in spreading social mission using social media.
3. To verify social cognitive framework for secure information sharing by Islamic NGO in spreading social mission using social media.

1.4 Research questions

As such, this study intends to answer the following research questions, which are derived from the objective:

1. What are the factors that influences secure information sharing practices of Islamic NGO in spreading social mission using social media?
2. What is the framework used for secure information sharing by Islamic NGO in spreading social mission using social media?
3. How significance is the social cognitive framework for secure information sharing by Islamic NGO in spreading social mission using social media?

1.5 Scope of research

Firstly, this research is focused on the study of how Islamic NGOs use social media applications to convey their message or spread them to other members, volunteers, and associates. Secondly, the focus is also given to see the impact of its security in helping Islamic NGOs to achieve their social mission. The scope of this research is social media such as Facebook and WhatsApp. These social media were chosen as the scope for this research because these are the two highest-ranking social media being used all over the world (Figure 1.3). Therefore, most users are likely to have these two social media accounts. Most NGOs also used these two social media platforms to communicate with their members (Strub, 2019). Facebook and WhatsApp also have group functions which are suitable for NGOs to use.

1.6 Structure of research

Chapter 1 provides a general overview of the research conducted. In Chapter 2, the literature findings discuss related issues to social media use, and NGOs, as well as the relation to Social Cognitive Theory. The literature review ends with a discussion of the research framework used in this research. Chapter 3 is the research methodology. A

quantitative method of research is used to conduct the data collection and analysis. In Chapter 4 the data were analyzed using SEM-PLS techniques. Chapter 5 presents the discussion on research objectives; meanwhile, Chapter 6 presents the conclusions of this research.

1.7 Summary

In the first section of this research, there was a discussion on the background of social media used by users around the world. The numbers are increasing every year; thus the connecting function between each user is becoming easier. Social media user numbers are increasing each year, with more than 13 percent over the past year. With an average of more than 1.3 million new users joining social media every day during 2020, is likely to have more numbers of users in the future. After that, the problem statement derives from the use of social media among NGO members. Data management, information validity, and mistakes in information dissemination have been identified as the main problems in using social media by NGOs during their social mission. Then, the objective and research questions for this study were laid out from the problem. This chapter also discussed the scope of research which focused on Islamic NGO that focused on education and social media usage of Facebook and WhatsApp.

CHAPTER 2

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CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The terms social media, a social networking application, and mobile messenger are often used interchangeably by people. When they are asked about examples of social media or social networking sites, they will respond with sites like Facebook, Myspace, Twitter, Flickr, or YouTube (Erlandson, 2013). It is like a communication channel and it delivers messages from the content creator to the end-users. People can join conversations depending on the topic, subject matter, or atmosphere with similar experiences and backgrounds (Erlandson, 2013). Instead of using the term social networking, this study will refer to it as social media since it was seen to be the general term for social networks (such as Facebook and MySpace), microblogging sites (such as Twitter), blogs, wikis, and YouTube (Gao, Barbier, & Goolsby, 2011; Leonardi, Huysman, & Steinfield, 2013). Meanwhile, Cann, Dimitriou, and Hooley (2011) discussed the used of social media are as follows:

- i) identification of knowledge
- ii) creation of knowledge
- iii) quality assurance of knowledge
- iv) dissemination of knowledge (also known as information sharing)

This section will be focused on several parts of the research. First, the review of the literature discussed on information sharing in social media by organizations, after that the

social media and the security features from the main applications mostly used, which are Facebook and Whatsapp, will be reviewed. Next, on the NGOs' usage of social media as part of their platform and lastly, the social cognitive theory associated with the social media used by NGOs.

2.2 Information sharing in social media by organization

The introduction of social media in organizations has created a new medium for organizations in managing their work. The rapid growth of social media provides opportunities and benefits to organizations. Not only do profit organizations gain the benefit, but non-profit organizations make use of it as well. Usually, profit organizations use social media as a medium to raise awareness and provide solutions to inquiries from customers and enhance relationships with customers. (Pourkhani, Abdipour, Baher, & Moslehpour, 2019).

But for non-profit organizations, they take advantage of social networking sites to promote their mission and spread information about what they do, and sometimes they find their members or volunteers through these social networking sites. Non-profit organizations can use all mediums of social media to spread out their activities or programs (Nchabeleng, Botha, Bisschoff, 2018). There are many social media that are widely used by users nowadays including Twitter, Facebook, WhatsApp, or even blogs owned by the organizations or owned by the members. Through this medium, everyone can get the same news since they are using these applications.

Social media also helps in fundraising for non-profit organizations (Lauro, Tursunbayeva, & Antonelli, 2019). This is because social media is a medium where many users can interact and communicate with each other to disseminate or spread the information they got. For example, Facebook has several applications that can help in increasing non-profit organization's fundraising.

In the context of work customs of NGOs within the situational behavior framework, social networks within NGOs are seen mainly for information dissemination, triggering awareness, public relations, finding resources, and sharing creative ideas. (Nchabeleng, Botha, Bisschoff, 2018; Nah & Saxton, 2012). Besides being used for the business and personal use of social networks, it also can be used to make a positive impact with marketing campaigns. Employees' or members' Facebook, social media accounts, and their network connections' reactions may boost brand awareness over the internet.

The awareness (Schunk & DiBenedetto, 2020) of social media for sharing information by an individual will lead to the use of social media in the very long term. They must make sure the information sharing is a secure and reliable source before forwarding the information to another user. A study from Bhatnagar & Pry (2020) shows that users that are having sufficient knowledge of security use while using social media and are aware of privacy and security threat in the use of social media platforms. The study also shows that users were using the security features of their social media platform and were aware that they need to maximize the use of security features when sharing something on social media.

When the users of social media are aware of the security risk when sharing information, they will make sure to forward the information from a reliable source and at the same time practice privacy and security features in social media. Secure information ensures it is efficiently disseminated by social media suggesting that users have trust in using social media (Williams, Valero, & Kim, 2018).

As information is easily transferred between social media sites, there are greater chances of information becoming public and this leads to serious security risks. In information security, there is confidentiality, integrity, and availability. These security requirements such as confidentiality, integrity, and availability contribute to cybersecurity risks in social media usage (Khidzir, Mat Daud, Ismail, Abd. Ghani, & Ibrahim, 2018). Visibility in terms of the viewer can see anyone and they are visible to each other. For example, sites like MySpace or Facebook allow users to set their profile to be 'public' or 'friends only'.

There are two aspects that must be considered when using these platforms as social networking sites – privacy and security (Ali, Islam, Rauf, Din, Guizani, & Rodrigues, 2018). When there are benefits of using these social networks, it also comes with several risks. The collected data from social media usage can be misused by data collectors, third parties, or by unauthorized users. For example, an unknown individual may approach them and ask to become friends on a social networking site. By accepting such requests, users need to be aware that their 'friend' might exploit their other contacts' information and use it as a data pool for recruitment purposes or for a set of spam, phishing or impersonation targets. While social networks can be extremely efficient and proactive marketing tools, employees must ensure they know who all of their 'followers' are,

particularly if they are openly willing to disclose developments about their company's products or services. Thus, they should only add people they know to their list, and permit access to their list of contacts only to these people.

The other important aspect that has to be considered is security, as all social networking websites are subject to inherent flaws and bugs, whether it is login issues, cross-site scripting potential or Java vulnerabilities. A simple dropper Trojan concealed as a widget or as a banner can easily be uploaded to the page of someone on an unprotected system. Furthermore, when that same person accesses an e-commerce website or a company network, the Trojan can remotely detect and send usernames, passwords, credit card numbers and other sensitive data to the attacker. Furthermore, on Facebook anyone can create applications, and a malicious app can spread from one user to another just through message posting. Although Facebook provides privacy controls for users to customize what types of information should be available on their profile, the default options are to share information with everyone and uneducated users will not adjust their privacy settings, wrongly assuming that corporate safeguards are protecting them. In the past few years, we have seen several examples of malware lurking on social networks. For example, there are at least half a million Facebook users that have fallen for the 'see who viewed my profile' application. Individuals need to understand that these sorts of applications do not exist, as Facebook doesn't offer the ability to calculate such information. These applications will just show random numbers, while in the background they post messages on the user's wall and send his or her private information to its creators. (Cosoi, 2011).

Since the invention of the internet, there are many ways that gave opportunities to people around the world to connect, interact, communicate, and share information about something. Today, social networking websites such as social media have given a great impact to a wide range of possible interactions which allows a user to share messages, pictures, videos, and even what they are doing at that time. When users share information (e.g., photos or data) using social media, they are vulnerable to breaches of privacy and security. This wide range of information needs some protection or security to ensure people can communicate or share information in a secure way. It is different from any normal website because social media sites are owned by private businesses. When a user enters a network that is governed and ruled by the owners of the site, they should be aware of the possibility of the data about individuals which they provide when they want to sign up to that social media. Privacy settings are only meant to protect a user from other members of the social network, but it does not shield one's data from the owners of the service. Thus, it is important to be very aware of the privacy and security issues if a user works with sensitive information and topics (Such & Criado, 2018).

Online communities allow communities from different ages, genders, religions, regions, and boundaries to interact. It is hard to detect user attributes in groups. To protect the privacy and address of users, many social media and social network websites, such as Facebook, Orkut, and Flickr, have features that allow their users to set their privacy levels when they are online. These users can set their profile as private, but if they join a group on social media, their friendship is visible to the public.

Thus, it is important for NGOs to make sure they are using secure information on social media and low risk of security threats. They have to make sure the NGO

environment is reliable and supports them in sharing information in a secure way. The NGO also has to support them in knowledge sharing. If there is any security risk happening when using social media, their NGO will act immediately to control the problem.

The main gap identified by previous literature analysis looks into the use of information sharing by NGOs and Islamic NGOs. As other NGOs use social media for the purposes of politics, education, welfare, healthcare, economic development, and others, meanwhile, in Islamic NGOs, use social media to share knowledge, news, requests for donations, and charity drives are communicated in their environment. Hence, information sharing is required for Islamic NGOs to disseminate information to the community. The knowledge and motivation to use social media in sharing information by the NGO members and also support by the security and privacy features in social media will make sure secure information by this NGO in their social mission.

2.3 Privacy and security features in Facebook

To enhance information sharing in spreading social mission using social media, it is important to look at the privacy and security features of social media. Social media security and privacy settings have a high impact on using social media as an information sharing medium. Social media brings benefits to organizations if they use it in their daily activities. Using social media, people can find more information about the NGO they want to join. The security practices of Islamic NGOs in using social media as their communication platform plays an important role in the security of social media itself.

This research will focus on the two main social media used by NGOs in their social mission, which are Facebook and Whatsapp.

Facebook has been the largest online social network platform widely used across the globe. The usability is so convenient that people of all ages, such as teenagers, youth, and senior citizens, can even access it without any hassle. There are millions of users' data (or billions, in the case of Facebook) floating around the web; hence, tight security from social media platforms has become important for tight security. They can message using Facebook Messenger, for example, to ask directly. Meanwhile, the NGO itself, can track the public's questions or opinions and then respond immediately. NGOs focused on education, can use social media as an e-learning platform as social media provides low-cost, and opportunities that enable teachers to interact with their students or students can communicate among them.

Facebook has become one of the popular social media platforms that provide for friends, family, or business associates to get connected, interact and share information. Users need to register to use this social media. Once they sign up, they can utilize all the features provided by Facebook. They can create their personal profiles, add friends, and also exchange messages with each other. Anyone on Facebook can see their profiles which contain information about themselves, their posts in the status shared, the uploaded videos or pictures, lists of friends, their liking towards a group, etc. Facebook features such as 'Find Friends' (Facebook account holders), 'Tagging', 'Like', 'Lists', and 'Follow' allow people to adopt, utilize and expand their communication ability toward certain goals or agencies. Users can have a chat by using public or private messages. Messages can be shared with a friend or other collective groups of friends, families, or

communities just by clicking the post button. It can also be distributed to other people within a short period by sharing the post and it will be like a viral post. Facebook allows its authorized users to upload videos and pictures only, not audio yet. However, users can set the status they want to post on Facebook as 'public', 'friends' or 'only me'. So, if the users don't want their friends to see their status, they can set it as 'only me' to the post. Through Facebook, people get to know their friends better or perhaps find new friends or reunite with old friends.

There are certain measures shown for the security of Facebook users and make available on the social media platform (Lamm, 2011). Some of the features include social authentication to make sure the account is logged in by the right user. Facebook will identify odd behavior using its social authentication to make sure that the account is with the right user. For example, if someone tries to log on with the same username and password while the user logs on, he will then be forced to look at a set of pictures and identify the names of people.

Next is full time https which is important that the computer is communicating with the secure site. This is to make sure the beginning URL of the webpage has https:// so that the computer is communicating with a secure site. Facebook allows users to browse with https at all times. Just go to the security settings and check "Browse Facebook on a secure connection (https) when possible." Besides that, malicious software protection with the account is frozen if malware is detected. For example, if the account has fallen victim to malware, Facebook will temporarily freeze your account and perform a scan on it until it is clean. Guardian Angelss also comes with security features that allow up to five recommendations from friends if users forget a password. For example, if the user forgets

his password and doesn't have access to his email, Facebook will allow him to select up to five friends so that they can help him login to his Facebook account. Then the friend will tell him the code necessary to log into the account.

Remote logout in the security settings allows a user to use Facebook on another computer, then he forgot whether or not he logged out of Facebook, he can simply go to the security page under the account settings. A list of “active sessions” which in each one he can end immediately. A one-time password is used when using a public computer and the user wants to be sure that that computer doesn't store his login information. Facebook will send a temporary password that is valid for 20 minutes. This will make sure the users are login using the correct password and secure the password from being hijacked. Clickjacking scam removal allows scams to be filtered through Facebook's filters, which scan “a trillion links a day” and block 230 million malicious actions per day.

In general account settings, there are the settings choices in the Facebook settings, where users are able to alter a username, include or alter an email account, alter the watchword as well as download a duplicate of Facebook information in a speedy time. Meanwhile, in security settings, there are a few traits that are required to be considered one by one in chronological arrangement to preserve the security and security of the Facebook account. The security settings identified in Facebook were shown in Table 2.1 as below. There are ten Facebook security features that are important to use such as ‘Login Alerts’, ‘Login Approvals’, ‘App Passwords’, ‘Public Key’, ‘Your Trusted Contacts’, ‘Recognized devices’, ‘Where you logged in’, ‘Profile picture login’, ‘Legacy contact’, ‘Deactivate your account’ and ‘Information filtration’.

Table 2.1: Facebook security features and description

	Facebook security features	Description
1.	Login Alerts	Users can get instant alerts when there is someone trying to login into a Facebook account from an unrecognized device.
2.	Login Approvals	To prevent hacking of Facebook accounts, users can get their account security enhanced by enabling approval code or security key upon login other than password.
3.	App Passwords	To maintain privacy and security of social media accounts, users can make sure their Facebook app password should be different from login password.
4.	Public Key	OpenPGP keys need to be generated on the Facebook profile and enable the encrypted notification options.
5.	Your Trusted Contacts	When a Facebook account gets temporarily locked or suspended because of some reasons, anyone trusted friends can help to login to Facebook. Users need to manage the list of trusted friends so that they are able to help in emergency situations like forgetting their username or password.
6.	Recognized devices	Users should recognize the device and browser they use to access Facebook accounts. The list of untrusted browsers or devices can be defined and block the access from there permanently to avoid any kind of malicious activity.
7.	Where you logged in	The important part is to check the location from where users have just logged into a Facebook account. If they find any other suspicious person accessing their account from an unknown location, they can get an immediate solution by using Report Facebook.
8.	Profile picture login	Profile picture can be turned off in case the login is disabled. Users just need to remember the password while performing profile picture login. This option can be disabled anytime.
9.	Legacy contact	Settings of the family member or trusted friend need to be chosen to take care of a Facebook account in your absence or something wrong happens to you.
10.	Deactivate your account	Deactivating an account can be done at any time and get invisible from the contact list of friends at the very moment. Users can anytime, re-activate their account by entering the correct login credentials and they will find all friends back in the contact list.
11.	Information filtration	<ul style="list-style-type: none"> • Information posted is editable whenever the user finds it necessary to do so. • Block and report the post • Unfollow post means the user won't see any post in News Feed but still remain friends. • Unfriend or leave the group.

	Facebook security features	Description
		<ul style="list-style-type: none"> • Deactivate or delete accounts.

These attributes in Facebook account settings need to be applied by users to keep social media accounts secure from malicious activities. The next important features are Privacy Settings and Tools. Basic privacy settings can be changed by users effortlessly as per prerequisite to keep the data private. By doing this, the past and future posts can be hidden from intruders or known people that are continuously peeping into someone's account to conduct malicious activity. In the next paragraph are the attributes that need to be considered the most to maintain the privacy of Facebook accounts.

In the feature 'Who can see my stuff?' in which users can select the option from the drop-down menu that appears upon clicking the edit button. When users need to review all the posts and things that have been tagged, users can also remove tags anytime if they think they do not want the same on the post or image shared on their Facebook wall. It can be done by clicking the link use an activity log in which users can allow or disallow anyone to tag them. By using Facebook, users also can limit the audience for posts that have been shared among friends or the public by setting an audience limit to view the post or image shared by you. This can be done by clicking the link Limit Past posts.

Next is the 'Who can contact me?' feature. In using Facebook, users can limit the number of people who can send requests after viewing their profile. By clicking the options Everyone or friends of Friends as per your choice. This recommended option is important to maintain the security and privacy of Facebook accounts.

Finally, is the feature of ‘Who can look me up?’. For example, who can look up someone using the email address provided? If users want to make people search through the email address you provided in the General account settings, they have to click on any of the options, such as everyone, friends, and friends of friends. The recommended option should be friends. Besides that, who can look up users using the phone number provided in the about sections? Users can hide contact information from unknown people and make it visible among friends that they know. The choice can be made between friends of friends and friends. The recommended option should be friends. Can search engines outside of Facebook be made to link to a user's profile? They can just click on the check box with the message “Allow search engines outside of Facebook to link to your profile” if users want the Facebook profile to be visible in the search engine or get linked with the search engine.

2.4 Privacy and security features in WhatsApp

Another social media that has been widely used and using mobile messengers is WhatsApp. The use of WhatsApp is easy and inexpensive since it can be used through smartphones or websites. Since most users have their own smartphones, they can use them to share something and this method is simpler in sharing or disseminating some information. Table 2.2 below shows Whatsapp features that can be set by users to maintain their privacy when using the platform. As we can see, Whatsapp also contains privacy settings where users can block contact if they find the sender is unknown.

WhatsApp is a social media app that is an inexpensive and cross-platform messaging app (like SMS) to send messages and multimedia files (e.g., pictures, videos) that work

through the internet connection of the mobile phone or Wi-Fi. The usage should be in a secure way so that the user can use it. For this to work, a user should check and use the WhatsApp security settings (Acharya, 2015; Matthew, 2015) that are available. Some of the security settings in WhatsApp can be seen in Table 2.2 below that should definitely be used to safeguard privacy. There are 12 security settings in Table 2.2 below including ‘Determine who can see your information’, ‘Online status’, ‘Hide WhatsApp images from Gallery/Photos’, ‘Lock WhatsApp’, ‘Hide 'Last seen' time’, ‘Hide Blue Tick (read receipts)’, ‘Hide WhatsApp profile photo from unknown contact’, ‘Backup WhatsApp conversation’, ‘Changing Number’, ‘Auto downloading of media’, ‘Roaming abroad’, ‘Block contacts’ and ‘Information filtration’.

Table 2.2: WhatsApp security settings

	Privacy and security settings	Description
1.	Determine who can see your information	Users can set information to be seen by only users, or the contacts or everyone.
2.	Online status	Users can set if they want their contacts to see their online status.
3.	Hide WhatsApp images from Gallery/Photos	WhatsApp images will not show up in the Gallery/Photos app in memory.
4.	Lock WhatsApp	Users can lock their WhatsApp if they don't want others to access it using the locking app available in Google Play Store.
5.	Hide 'Last seen' time	Disabling the last seen time stamp is helpful for those who do not want others to know how often they are online on WhatsApp or, when is the last time they used it.
6.	Hide Blue Tick (read receipts)	When users open a message received on WhatsApp, the sender receives a notification with a blue tick, also known as read receipt. If they don't want others to know whether they have read the message, they can disable this option. WhatsApp has a built-in feature to disable this.
7.	Hide WhatsApp profile photo from unknown contact	WhatsApp profile photos are displayed always, and anyone with a user's number can access it on his/her phone. Users also can hide the profile image as well.

	Privacy and security settings	Description
8.	Backup WhatsApp conversation	If users don't want to lose the communication information, they also can create a backup. By default, it has been saved automatically. Then the backup files can be moved to their PC. With the latest version of WhatsApp featuring Material Design, users can backup and email WhatsApp conversations to Google Drive as well.
9.	Changing Number	The WhatsApp account is linked to the user's mobile phone number. If they change their phone number or give their old phone, they should be sure to delete the account with the old phone number by using the function "change number" WhatsApp. So, the account associated with the old number will be deleted.
10.	Auto downloading of media	To save data volume, users can disable the automatic download of media in WhatsApp or at least limit.
11.	Roaming abroad	If they use WhatsApp abroad via Wi-Fi, it will remain free. Otherwise, incur roaming charges for your internet connection which can be very expensive.
12.	Block contacts	If users do not want to get any messages from contacts, they can block them. Blocked people cannot see any changes of profile picture, cannot exchange messages and may also not see the timestamp "last time online ..." and "online".
13.	Information filtration	<ul style="list-style-type: none"> • Delete posts within the time limit of one hour for everyone. • Delete own post with no time limit. • Able to detect forwarded messages.

Besides the security features that have been identified in Table 2.2, there are some security features in WhatsApp that can be used generally to safeguard private information. Firstly, WhatsApp uses end-to-end encryption by default, and each chat is labeled as "end-to-end encrypted". This means that all messages, calls, and status updates that are sent are kept between users and the receiver only. Each of the WhatsApp contacts has a special security code that ensures that all conversations exchanged between the two contacts are secured. Secondly, WhatsApp offers end-to-end encryption to ensure that

personal chats between users stay secure. A security code to each chat has been assigned and users can also verify. If there is changing in the security code, users can choose to enable security notifications to alert them. This usually happens when WhatsApp is reinstalled or installed on a new device.

Thirdly, the features of two-step verification provide additional security for users. WhatsApp's users can choose to enable two-step verification that requires a PIN every time they register their phone number with WhatsApp or log in from a different device. Users will need a six-digit pin code to log into their WhatsApp account on a new device by enabling the two-step verification. This will provide security measures as WhatsApp will also ask users to enter the PIN code every 72 hours. To enable two-step verification, users can go to the Settings menu on WhatsApp and select Account. Then, select Two-Step verification from the list and tap on enable. Next, WhatsApp also secures their chat conversation by using WhatsApp Disappearing messages. By using this feature, WhatsApp's users can choose to erase all messages exchanged in a chat with the new Disappearing messages feature. All messages exchanged between two users will disappear after seven days once they are enabled for a chat. All messages sent before the feature update will be saved, so users don't need to worry about losing previous conversations. Lastly, the important security feature is WhatsApp has added a biometric security feature for iOS and Android devices that adds a layer of protection on the personal chats. Apple iPhone users can use TouchID or FaceID to authenticate their login, while Android users can secure WhatsApp with a fingerprint lock. To set a biometric security password on WhatsApp, users can go to the Settings menu and select Accounts. Tap on Privacy and scroll down to Fingerprint lock/ Touch ID or Face ID. Here, they can tap on the toggle to enable unlock with fingerprint or facial unlock.

2.5 NGOs and their objectives

A non-governmental organization (NGO), is a voluntary group of individuals or organizations, that is formed to provide services or to advise on a public policy and is usually not affiliated with any government. There are many issues addressed by NGOs including human rights, environmental protection, disaster relief, and development assistance, and the scope of their activities may be local, national, or international. The source of finance for NGOs may be financed by private donations, international organizations, governments, or a combination of these (Karns, 2020).

In Malaysia, the Malaysian Agency Registration Office, a department under the Ministry of Home Affairs is responsible for handling non-governmental organizations and political parties. In Section 2 of the Societies Act 1966, a society is defined as any club, partnership, or association that consists of seven (7) or more persons, whatever its nature or object, whether temporary or permanent, but does not include bodies that require registration under any written law, such as companies, cooperatives, trade unions, parent-teacher associations, and sports bodies. This department ensures the growth and development of a healthy and orderly society which is not in conflict with the requirements of peace, welfare, security, public order or morals. This department carries out registration, monitoring, and control activities of the societies registered (Malaysian Agency Registration Office, 2021).

In Malaysia, there are more than 1000 organizations or societies that were registered with The Registry of Societies Malaysia, Ministry of Home Affairs, Malaysia, from 2017 to 2021.

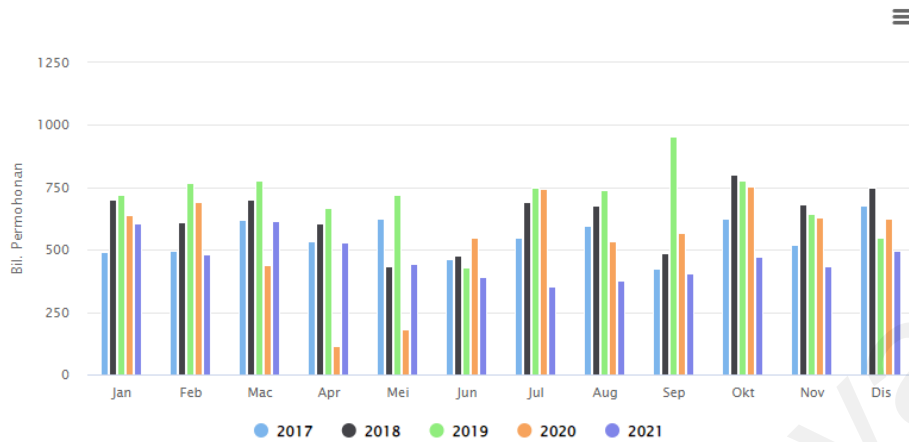


Figure 2.1: Statistic of Society Registration (2017-2021)

As shown in the Figure 2.1, there are more than 1000 societies applying for registration with the government for 2016. All these societies are government-based organizations or non-government-based organizations.

Non-profit organizations provide a way for an individual to communicate to their community (Nchabeleng, Botha, Bisschoff, 2018). They have several interests such as in religion, politics, education, welfare, healthcare, economic development, and so others. Technology such as web 2.0 is very helpful to this organization by spreading the news about what they do to achieve their mission. In line with the NGO objectives, information sharing is an essential task carried out by NGO to spread news or to distribute or to disseminate information to the community. The best possible way to do it by using social media.

Islamic NGO is different from another NGO within a social context in the Islamic world. For example, a manager in another NGO likes to stress on completion of the task, and the committee is bound to where its motivations and intentions are based on volunteer and charity concept forms in multiple cultural contexts. Similarly, in Islamic NGO, the requirement to share knowledge, news, requests for donations, and charity drives are communicated in their environment. Hence, information sharing is required for Islamic NGOs to disseminate information to the community. Therefore, this serves as a good basis to conduct research related to technology usage for the purpose of secure information sharing because Islamic NGO rely highly on social media for communication purposes to disseminate the information among them.

2.6 Social cognitive theory associated with information sharing using social media by NGO

Social Cognitive Theory (SCT) is a theory developed from Social Learning Theory (SLT) in the 1960s by Albert Bandura. The social learning theory that evolved into social cognitive theory is commonly related to health communication as it is closely related to cognitive and emotional, environmental, and behavioral factors. Social learning theory emphasizes that a lot of new behavior is by observing it and its consequences. While social cognitive theory states that new behavior is in the presence of personal or cognitive factors (such as age, cognitions, previous experience with the behavior, opinion), their own behavior (such as the action taken, outcomes achieve after a behavior done) and also the environment (such as external factor, access to resources, safety, policy, support from friends or family). The social cognitive theory explains that each individual who maintains a behavior will consider the social environment in which the area of the

behavior takes place (Bezner, & Held Bradford, 2020). It takes into account past experiences that influence whether past behavioral actions will occur.

Social cognitive theory suggests that human social behavior is shaped and controlled either by environmental influences or by internal dispositions, which is in terms of unidirectional causation. Personal/cognitive, behavior and environment are three causal factors that are reciprocal and related to each other (Figure 2.2). Environment influences the person's cognition or personal (expectations, beliefs, attitudes, strategies, thinking, and intelligence) and behavior (the result of the expectations). Meanwhile, behavior is influenced by personal/cognitive and environmental factors and can be predicted by the personal/cognitive factors of the environment by the behavior factor (Ma, Ding, Zhang, & Zhang, 2020). People react with direction. Mostly personal/cognitive and the environment of social media influenced the behavior of using social media as a platform to disseminate information. Through the relation and interaction among the three determinants, individuals tend to make the decision on their thoughts and actions.

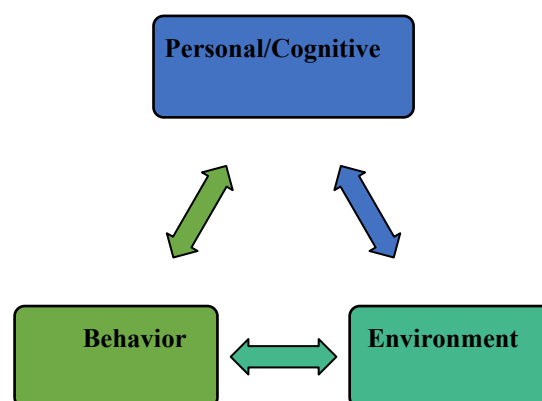


Figure 2.2: Schematization of triadic reciprocal causation in the causal model of social cognitive theory

People are self-agonizing, proactive, self-reflecting, and self-regulating, not just controlled by environmental determinants or inner factors. Human development, adaptation, and change are also associated with social systems. Thus, personal/cognitive determinants and social structure acted as co-determinants in an integrated causal structural rather than unidirectional causation (Laranjo, 2016).

For example, the security of social media behavior is shaped and controlled by environmental influences; for instance, the organization provides internet connection for all members and also personal factors in the form of abilities to complete the behavior, such as the knowledge they have to use social media. Thus, people are more likely to use social media for information sharing purposes in the very long term, and they also will invite others to use it as well.

The determinants that have been identified via literature review are classified into three different categories. Table 2.3 shows the three categorizations of determinants related to social cognitive theory.

Table 2.3: The determinants of Social Cognitive Framework

Cognitive determinants	Behavior determinants	Environmental determinants
Sufficient knowledge (Bhatnagar & Pry, 2020)	Ethical sharing practice (tone) (Williams, Valero, & Kim, 2018)	Reliable environment (Such & Criado, 2018).
Awareness (Schunk & DiBenedetto, 2020).	Safe sharing of information (reliable/trust) (Williams, Valero, & Kim, 2018)	Privacy and security (Ali, Islam, Rauf, Din, Guizani, & Rodrigues, 2018; Cosoi, 2011)

Cognitive determinants	Behavior determinants	Environmental determinants
Ethical cognitive practice (Bhatnagar & Pry, 2020)	Committed to mission (Williams, Valero, & Kim, 2018)	Environment that supports knowledge sharing (Nchabeleng, Botha, Bisschoff, 2018; Nah & Saxton, 2012).

2.7 Conceptual framework using Social Cognitive Theory

The conceptual framework of the study is shown in Figure 3.2. The secure information sharing of Islamic NGO through social media is controlled by three factors which are personal/cognitive factor, behavior factor, and environmental factor. Thus, this study will test if these three determinants of secure information sharing have influence on the secure information sharing of Islamic NGO through social media.

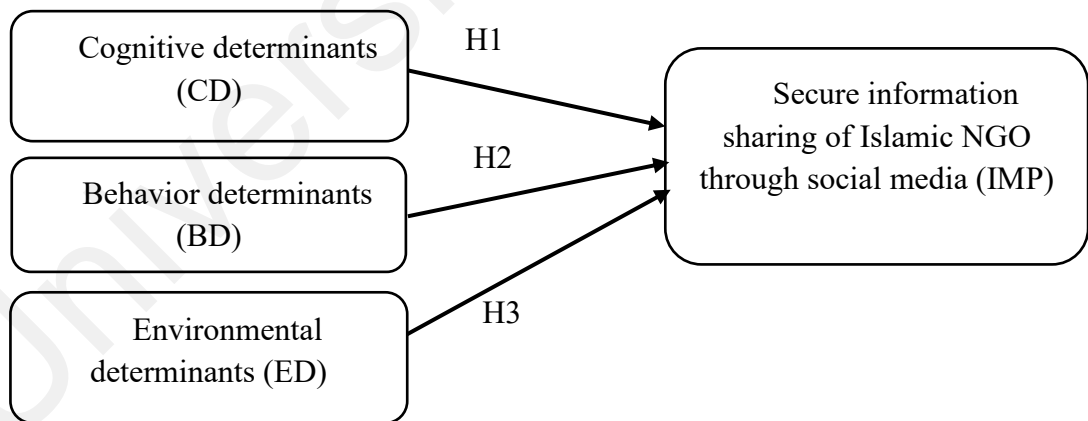


Figure 2.3: Conceptual framework with hypothesis

Table 2.4 below will show the construct or set of questions that have been asked to respondents in the survey. First, we have done a pilot study to get NGO member's feedback on the behavior of social media usage in NGO social activities. From the pilot

study, we have found that NGO members are focused on social media features and usage in their NGO activities. After that, the construct of the questionnaire is derived from a conceptual framework to test out the secure information sharing of social media usage in NGO social activities based on the Social Cognitive Theory.

Table 2.4: Construct use in a set of questionnaires

Personal/Cognitive Determinants (CD)	
CD1	I have sufficient knowledge about information security when using social media of NGO.
CD2	I am aware of security risk when using social media.
CD3	I believe when someone in my NGO posts something confidential, others will keep it confidential and will not disseminate to unauthorized person.
CD4	I am sure that my NGO has the right to block any negative comments or not accurate information about our activities and social mission in social media.
CD5	I intend to use social media for my NGO activities and social mission as often as needed because there is security of social media.
Behavioral Determinants (BD)	
BD1	My NGO monitors every members' post in my NGO social media to ensure information security of the statement.
BD2	I usually share my NGO activities and social mission in social media and make sure it is reliable and accurate.
BD3	Information security of social media can keep my discussion and interaction between NGO members safe and secure.
BD4	Using the information security of social media increases my NGO activities and social mission spread to the communities.
Environmental Determinants (ED)	
ED1	The security features and security settings in social media play important roles to ensure that reliable information about NGO activities is disseminated.
ED2	Training of using the security features of social media is very important to every member in an NGO.
ED3	Policy about social media usage in NGO is important to protect my NGO privacy.
ED4	Security features and security settings of social media can protect my NGO privacy and information security.
ED5	If there is any security risk happen when using social media, my NGO takes action immediately to control the problem.
ED6	Members of my NGO support the use of the information security of social media in our activities and social mission.
Secure information sharing of Islamic NGO through social media (IMP)	
IMP1	Social media policy and security settings helped in NGO activities and social missions.
IMP2	Social media policy and security settings helped in faster information dissemination.

IMP3	Social media policy and security settings helped in reducing time of communication.
IMP4	Social media security helped in secure communication and interaction between users.
IMP5	Information security of social media keeps confidential information of NGO secure and only can be accessible to the authorized person.
IMP6	Users can always contact social media help center when risky and harmful information presented during social media usage.

2.7.1 Research hypotheses

Based on the theoretical assumption, this study proposes three main hypotheses:

H1: Personal/cognitive determinant positively influences the secure information sharing of Islamic NGO through social media.

H2: Behavioral determinant positively influence the secure information sharing of Islamic NGO through social media.

H3: Environmental determinant positively influence the secure information sharing of Islamic NGO through social media.

According to Laranjo (2016), the three causal factors that are reciprocal and correlate to each other, which are the personal/cognitive factor, behavior and environment. Cognitive factors include expectations, beliefs, attitudes, strategies, thinking, and intelligence of a person in the NGO influence behavior patterns and environmental events in this study. The hypotheses H1, H2, H3, which concern the personal/cognitive, behavioral and environmental factors are positively related to the security of social media practices and usage in NGO activities. An NGO differs from

other organizations in social media usage as a platform to interact and share their activities. Social media usage gives impact to organizations (Tajudeen, 2014).

2.8 Discussion of research framework used in this research

Social media as the medium for information sharing by NGO members should have an effective process for monitoring and understanding members' behaviors of using social media either for their NGO's activities or also for personal usage. As the method of conversation and information sharing is more to traditional conversation and learning, the social cognitive theory was applied as it relates the self-efficacy, which is the confidence a person has in his or her ability to perform a behavior, and influence on environment change. Self-efficacy is used to predict the amount of effort an individual will expend to practice behavior and the effort expended to overcome barriers either by external or internal factors (Bezner, & Held Bradford, 2020).

The social cognitive theory was used to study NGO behavior in this study. As an NGO consists of members from different backgrounds, it is important to have an understanding of human thought, behavior, and environment of the people within or outside of the NGO itself towards social media they used in daily life. This theory has determinants that are linked and reciprocal to each other. From this theory, we can see how these cognitive, behavior, and environment are linked to social media usage by NGO members.

2.9 Summary

This chapter discussed the literature review for each topic, from social media usage to the functions used in social media. There are many uses of social media involving NGOs. Information security not only helps to protect and prevent unauthorized acts of computer users but also secures information on social media. Since social media has many users who are sharing their information and the information needs to protect and prevent from being accessed by unauthorized users. Since organizations share important and valuable information, thus it should be protected from any unauthorized users or organizations.

With the use of the internet, especially the use of social media, people are becoming more comfortable in providing their personal information. The top threats to social media, according to Afurniss (2011) are malware, spam, and phishing. Besides that, there are also problems arising from social media usage; for example, oversharing, and information aggregation with the overuse of social media (Rose, 2011). Social media are built on the idea of information sharing, individuals actively sharing their experiences. People often share their offline behavior online. Whether for socialization or business-oriented, there are several risks to members of social networks. For example, users are requested to accept friends. In accepting such requests, users should be aware that the 'friends' are real friends, that they know, or that the 'friends' are from unknown individuals (Cosoï, 2011).

Thus, mitigation techniques have been discussed to minimize these security issues (He, 2012). They also need to be more careful on accepting friend requests over their social media accounts or installing applications. A suggestion for organizations, they should conduct regular training on data security to give employees or members an understanding of the risks involved in social media (Cosoï, 2011).

Besides the usage of social media, there is also social cognitive theory used to study the relationship between social media usage and NGOs. The social cognitive theory was used in this study as this theory connected each causal factor. Personal or the NGO, behavior in using social media, and external environmental factors from external are three causational factors that are related to each other in this study. This literature review covers the main points from each scope of research.

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CHAPTER 3

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CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

A research methodology is a structured set of guidelines to assist in collecting data to solve the research problem. It shows how research is done from one step to another step until finish (Kothari, 2020). The research methodology adopted in this research is the quantitative research methods. A quantitative research method is important to test hypotheses using a set of questionnaires containing simple questions and short answers (Basias & Pollalis, 2018). The importance of selecting quantitative method research in this study is to enable of collecting opinion in NGO's members. A set of questionnaires containing questions derived from the Social Cognitive Theory was given to the NGO's members to answer and give their opinion.

The research methodology in this study involved four phases to answer the three objectives as shown in Figure 3.1. In the first phase of this research, a brainstorming session was conducted to identify the content of this study. At the same time, selected articles are reviewed to understand the past and current trends of NGOs in executing missions via social media. The research problem was identified through this literature study stage. Through this step, any references from different sources such as books, journals, thesis and dissertation, paperwork, articles, reports, and websites were used to refer to and do a brief literature review. Data from primary or secondary data are involved in this research. After the research problem and solution were determined, the research objectives and research questions were derived to address the research problems. Social

Cognitive Theory was decided to be used as the basis of this study. This phase is to answer objective one.

In the second phase, three hypotheses were developed based on the theory used in this research, which are derived from Social Cognitive Theory determinants. These three determinants were tested for either positively or negatively influences the secure information sharing on NGO activities. A set of questionnaires was designed using the three determinants of Social Cognitive Theory which are personal/cognitive determinants, behavior determinants, and environmental determinants. This phase is to answer objective two.

Research fieldwork was conducted in the third phase to answer objective two. Data was collected using quantitative data collection methods to study whether these three determinants negatively or positively influence the secure information sharing of Islamic NGO through social media. The distribution of survey forms was done to the committee members or volunteers to 12 cooperative NGOs. Questionnaires were distributed to administrations, members, and volunteers in the Islamic NGO using e-mail or face-to-face meetings. 73 respondents were cooperative enough to be given a set of questionnaires related to this study. After data collection finishes, data will be analyzed using Structural Equation Modelling techniques (SEM)-PLS method. The hypotheses were verified whether these three determinants negatively or positively influence the secure information sharing of Islamic NGO through social media.

During the fifth phase, evaluation and validation of the framework using SEM-PLS are done to answer objective three. The objectives of this study were discussed to answer all the research questions. This study was concluded in the last chapter.

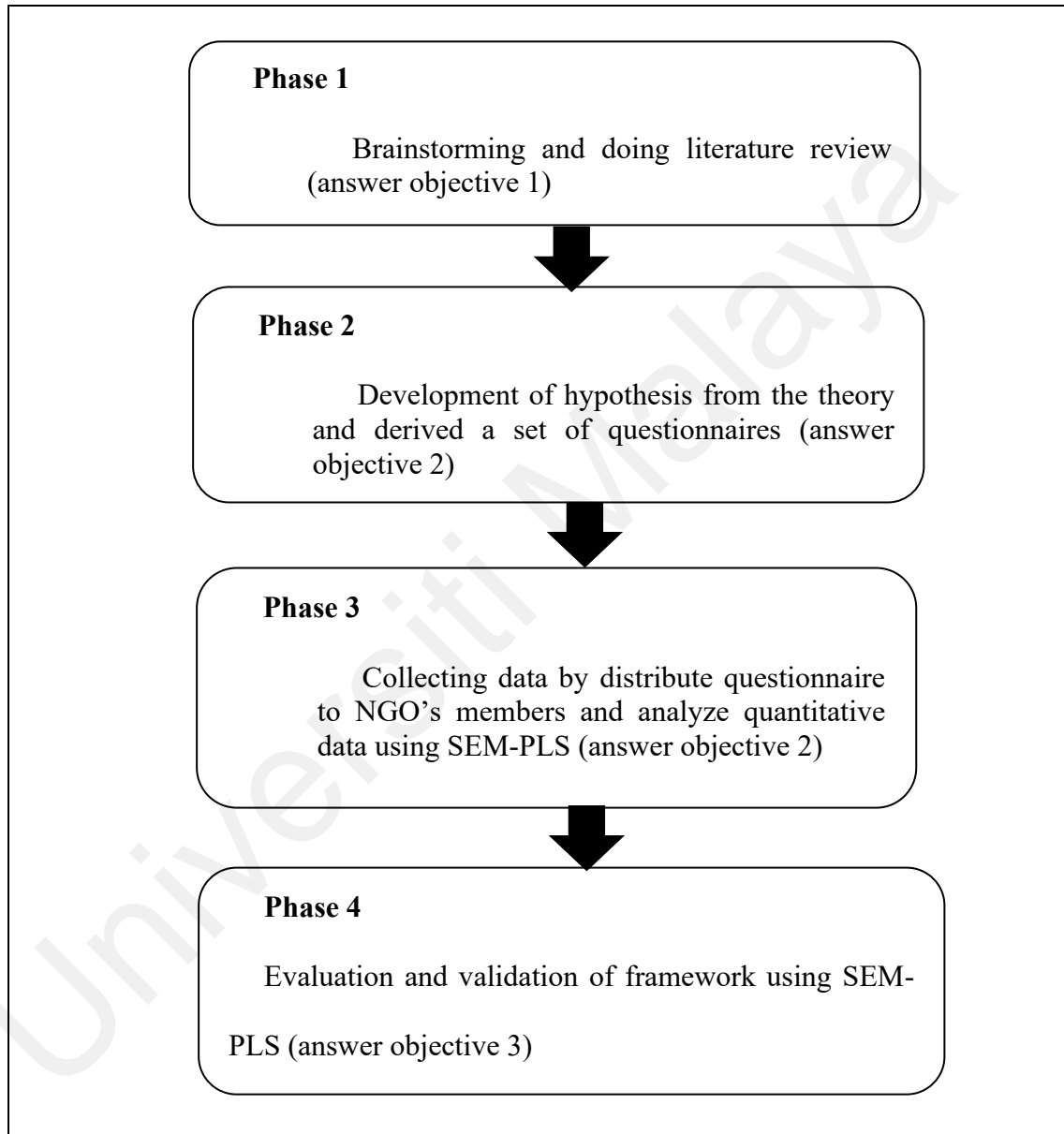


Figure 3.1: Research methodology

3.2 Research design

As in quantitative methods and to test the research model and hypotheses, a survey was conducted to investigate the secure information sharing of Islamic NGO through social media in NGO activities. A set of questionnaires was developed according to hypotheses and theory of social cognitive behavior.

3.2.1 Instrument development

The survey consisted of a two-section questionnaire. The first section is to collect demographic information of the respondents, including the name of the NGO, position in the NGO, ICT knowledge, and the NGO's background. The second section is to identify the respondent's knowledge about information filtering systems. While the third section used subjective measures to evaluate respondents' perceptions regarding the theoretical constructs. Each construct contained four measures graded using a 5-point Likert scale. 5-point Likert-scale ranges from Strongly disagree, Disagree, Neutral, Agree, and Strongly agree. This 5-point Likert scale was chosen because it offers five different answer options or opinions related to an agreement for the respondents and is easier for respondents to understand since it also includes neutral answers (Joshi, Kale, Chandel, & Pal, 2015). The measures of secure information sharing of Islamic NGO through social media used are adapted from the Social Cognitive Theory (SCT) measures such as cognitive determinants, behavior determinants and, environmental determinants.

3.2.2 Respondents

The research questionnaire was delivered via e-mail, online form, and face-to-face meeting which took place in the Klang Valley area. The respondents included members, management units, and volunteers of the NGO related to education. The Islamic NGOs involved in this study are 12 NGOs. There were 73 respondents collected to this time involved. The respondents were 10 males and 63 females. The female respondents taking part in this study are more than male respondents because most of the NGOs have female members in their organizations. The range of age is between 19-80 years old. They come from various backgrounds in understanding and use of ICT in daily life. Some of them have little understanding of ICT; some have moderate understanding, and a few have good understanding of ICT. All of the respondents are using Facebook and WhatsApp as their main social network applications and a few are using others such as Telegram and Instagram.

3.2.3 Procedure

A set of questionnaires includes a brief explanation of the background of the respondents and the other part is to answer research questions which have 16 questions. These questions are also related to the objectives proposed in this study. The questionnaire was distributed as a pilot study first and then distributed to the main organizations. The questionnaire was distributed through emails, online survey forms, and in-person by meeting them at the seminar or at their office. Before the questionnaire was distributed, the respondents had been explained the research background and research objectives.

3.2.4 Structural Equation Modeling in research

Structural equation modeling methods have become popular among researchers nowadays. One of the most interesting ways to use structural equation modeling is because of its capability to test theories and concepts. It would make research easier. This study used SmartPLS 3.0 software to analyze the results.

3.2.5 Partial Least Square (PLS) method

The partial least square (PLS) method was used for assessing scales validity and testing the hypotheses. The SmartPLS software was used to test the hypotheses. Both parameters of the measurement model and of the structural model were estimated using SmartPLS. First, convergent validity and discriminant validity of scale items were assessed in the measurement model. After that, the path coefficients and variances explained were assessed in the structural model. A bootstrapping technique with 100 subsamples was used for deriving parameter means, standard errors, and significance for item loadings, item weights, and path coefficients. This process will determine whether the hypothesis was supported or not.

This study used the partial least squares approach to analyze the questionnaire data due to the small sample size. As an alternative to structural equation modeling, the partial least squares approach is often used by researchers in analyzing data. The partial least squares can analyze small samples. Hence, partial least squares were used to conduct data analyses.

In this research, there are two-steps in the testing hypotheses. The processes include (1) assessing latent variables which are the Cognitive Determinants (CD), Behavioral Determinants (BD), Environmental Determinants (ED) and Secure information sharing of Islamic NGO through social media (IMP) at the observation level (outer or measurement model) and (2) test relationships between latent variables on the theoretical level (inner or structural model) After that, the structural model analysis was carried out. The research hypotheses were evaluated and tested in this second process.

3.3 Summary

This chapter discusses the method used in this research. First, quantitative methods were conducted to investigate the impact of the security of social media on NGO activities. A survey has been done and data from the NGO on using social media was collected. The respondents included members, management units, and volunteers of the NGO related to education. After that, the data were analyzed using the SEM-PLS method and the research hypotheses were evaluated and tested.

CHAPTER 4

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CHAPTER 4: RESULTS

4.1 Introduction

This chapter presents the analysis of this study, which is quantitative data collection. The discussion provides insights into quantitative data analysis. This chapter presents the results and discussions of the three hypotheses.

H1: Personal/cognitive determinant positively influences the secure information sharing of Islamic NGO through social media.

H2: Behavioral determinant positively influences the secure information sharing of Islamic NGO through social media.

H3: Environmental determinant positively influences the secure information sharing of Islamic NGO through social media.

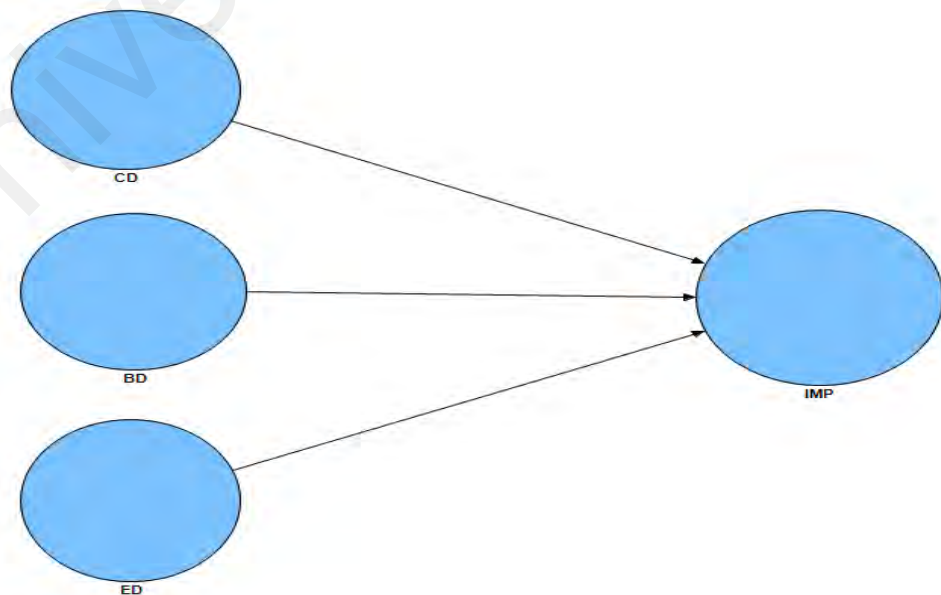


Figure 4.1: Conceptual model in SmartPLS

Figure 4.1 shows the conceptual relationship model as in PLS and was interpreted by using the hypotheses. Structural equation modeling (SEM) allows testing of complete theories and concepts (Wong, 2013). The structural equation model consists of two sub-models. The structural model (the inner model) specifies the relationships between the independent and dependent latent variables, whereas the measurement model (the outer model) specifies the relationships between the latent variables and their observed indicators. Figure 4.2 below shows the measurement model and structural model used in this study.

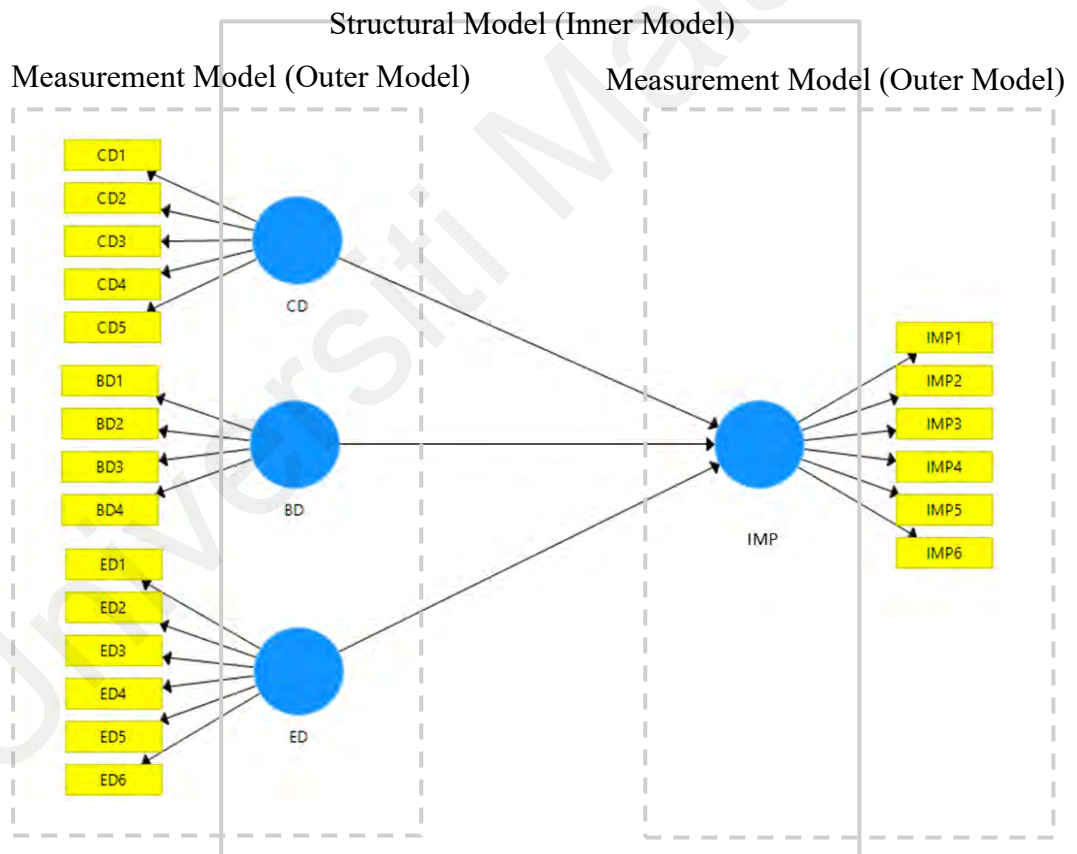


Figure 4.2: The measurement model and structural model in SEM

In Figure 4.2, the structural model refers to the outer model, which is the relationship of Cognitive Determinants (CD), Behavioral Determinants (BD), and Environmental Determinants (ED) with Secure information sharing of Islamic NGO through social media (IMP). Meanwhile, the measurement model refers to the variables and their indicators, which are the questions that are used in the collection of data.

The next section 4.2, presents the results of the measurement model. The results are shown in Table 4.1 and Table 4.2. Section 4.3 presents the structural model in relation to the three hypotheses. The results of the hypothesis testing are shown in Table 4.3. Section 4.4 and section 4.5 present the discussion of the framework and determination of coefficient value, respectively.

4.2 Measurement model

The measurement model was assessed using outer/item loadings, convergent validity (AVE), reliability of measure (Cronbach's Alpha and composite reliability), and discriminant validity (J. Hair, Ringle, & Sarstedt, 2011). In this PLS analysis, the item loadings and cross loadings in the reflective measurement model test is used to test the significance of each item or variable (Figure 4.2). This model shows reflective measurement scale as the indicators in this model are highly correlated and interchangeable. Thus, the following topics can be discussed from this reflective measurement model.

- a. Explanation of target endogenous variable variance
- b. Inner model path coefficient sizes and significance

- c. Outer model loadings and significance
- d. Indicator reliability
- e. Internal consistency reliability
- f. Convergent validity
- g. Discriminant validity
- h. Checking Structural Path Significance in Bootstrapping

4.2.1 PLS-SEM Results

The PLS path modeling estimation for this study is shown in Figure 4.3. The number of arrows which are called path coefficients show all items before deleted. These path coefficients explain how strong the effect of one variable is on another variable. If the item has low outer loadings, it will be removed to detect not reliable variables.

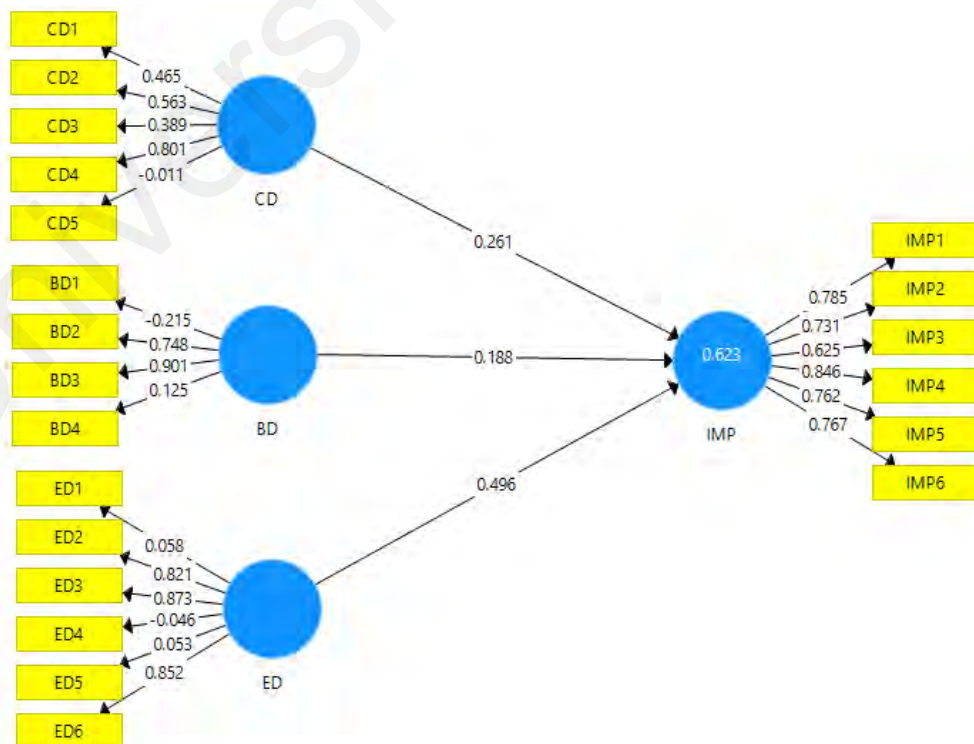


Figure 4.3: Items with all outer loadings before deleted

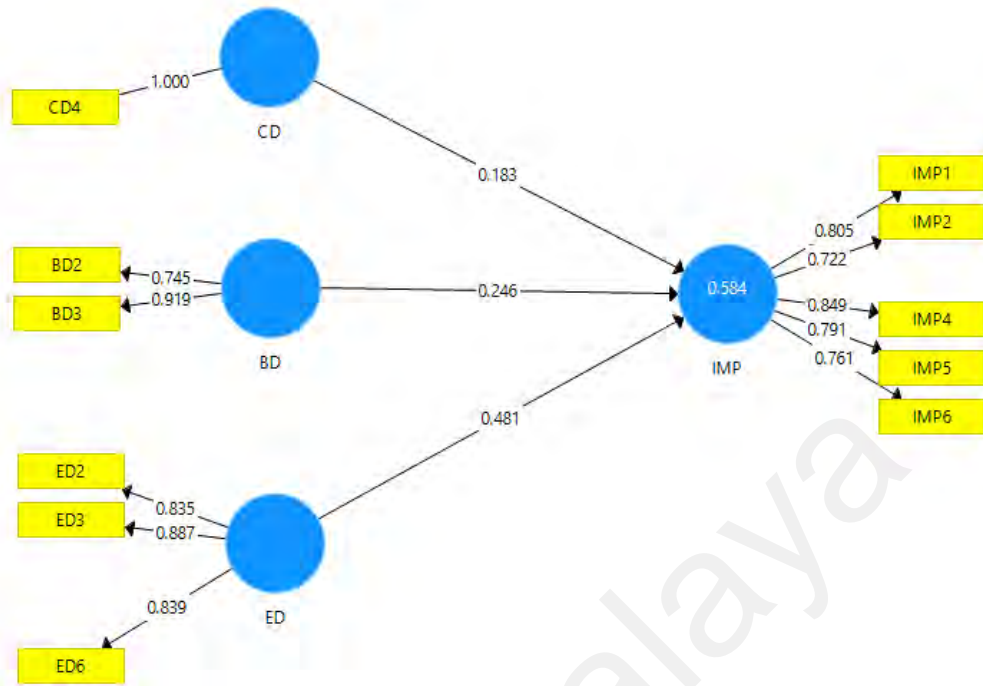


Figure 4.4: Items with low loadings were deleted

Figure 4.3 shows all items before deleted, while Figure 4.4 shows all items after low loadings have been deleted. The item or variable was considered to be reliable if its loading was greater than 0.70 (Wong, 2013). If the loading is below 0.70, variables must be dropped from the analysis model before the test was continued. This is to detect not reliable and valid variables, which are the dropped variables. The following topic presents the results for this study.

(a) Explanation of target endogenous variable variance

- The coefficient of determination, R^2 , is 0.584 for the IMP endogenous latent variable. This means that the three latent variables (CD, BD and ED) moderately explain 58.4% of the variance in IMP.

- The R^2 was explained by the structural model. It indicates the quality of the adjusted model. $R^2 = 2\%$ as classified as having a small effect, $R^2 = 13\%$ as a medium effect, and $R^2 = 26\%$ as having a large effect.

(b) Inner model path coefficient sizes and significance

- The inner model suggests that ED has the strongest effect on IMP (0.481), followed by BD (0.246) and CD (0.183).
- The hypothesized path relationship between CD and IMP is statistically significant.
- The hypothesized path relationship between BD and IMP is statistically significant.
- The hypothesized path relationship between ED and IMP is statistically significant.
- Thus, we can conclude that: CD, BD and ED are moderately strong predictors of IMP.

(c) Outer model loadings

- The outer model loadings from Figure 4.4 are shown as per Table 4.1

(d) Indicator reliability

- From Table 4.1, shows that all of the indicators have individual indicator reliability values higher than 0.5.

Table 4.1: Results Summary for Reflective Outer Model

Latent Variable	Indicators	Loadings	Indicator Reliability (i.e., Loadings ²)	Composite Reliability/ Cronbach's alpha	AVE
CD	CD4	1.000	1.000	1.000	1.000
BD	BD2	0.745	0.555	0.821	0.699
	BD3	0.919	0.845		
ED	ED2	0.835	0.697	0.890	0.729
	ED3	0.887	0.787		
	ED6	0.839	0.704		
IMP	IMP1	0.805	0.648	0.890	0.619
	IMP2	0.722	0.521		
	IMP4	0.849	0.721		
	IMP5	0.791	0.626		
	IMP6	0.761	0.579		

(e) Internal Consistency Reliability

The reliability of the measures involved the use of composite reliability and Cronbach's alpha. In general, the minimum value of composite reliability is 0.7, and the minimum value of Cronbach's alpha is 0.6 (Wong, 2013). Scores below 0.6 indicate a lack of reliability (Taber, 2018) as Cronbach's alpha is used to measure the internal consistency or reliability of a data set. It differs in each field. In Table 4.1, the values show the composite reliability and the Cronbach's alpha of the PLS analysis. This test shows reliable data because all the values are more than 0.80. The score for latent variable composite reliability and Cronbach's alpha is higher than the recommended value, which is 0.60 shows that constructs are considered reliable for this research.

(f) Convergent validity

The convergent validity was assessed by using the Average Variance Extracted (AVE) and latent variable correlations. The AVE value must be greater than 0.50 to explain

sufficient convergent validity (Wong, 2013). Table 4.1 shows that all values of AVE were greater than 0.50, so convergent validity is confirmed.

(g) Discriminant validity

The discriminant validity test was assessed. In the SEM using PLS, the discriminant validity test was conducted by the measurement of “square root” of AVE of each latent variable should be greater than the correlations among the latent variables (Wong, 2013). The result is shown in Table 4.2. The results show that the latent variables have good discriminant validity value.

Table 4.2: Fornell-Larcker Criterion Analysis for Checking Discriminant Validity

	BD	CD	ED	IMP
BD	0.836			
CD	0.383	1.000		
ED	0.563	0.511	0.854	
IMP	0.587	0.523	0.714	0.787

The latent variable ED’s AVE is found to be 0.729 (from Table 4.1) hence its square root becomes 0.854. This number is larger than the correlation values in the column of ED (0.714) and also larger than those in the row of ED (0.563 and 0.511). Similar observation is also made for the latent variables BD, CD and IMP. The result indicates that discriminant validity is well established.

Tables 4.1, and 4.2 show the results of the measurement model to be reliable and valid, since all the values met the standard levels.

(h) Checking Structural Path Significance in Bootstrapping

T-statistics for significance testing of both the inner and outer model are tested using a procedure called bootstrapping. The results will be discussed in the next section.

4.3 Structural model

The second phase of PLS analysis is the structural model assessment, which has been conducted once the measurement model has satisfied all the tests. This process was used to verify the hypotheses by using P-values associated with the path coefficients (Ken, 2013). The P-values and T-statistics were used for significance testing of both inner and outer models, using a re-sampling technique called bootstrapping (based on 1500 samples) in SmartPLS. The value indicates the magnitude of the relationship between the two latent elements in the model. Using a two-tailed t-test with a significance level of 5%, the path coefficient will be significant if the T-statistics are greater than 1.96. Meanwhile, if P-values is ≤ 0.05 the hypothesis is accepted, otherwise the hypothesis is rejected. The hypotheses showed a relationship between the two factors. The P-values and T-statistics of the hypothesis's relationship are presented in Table 4.3. The same table also presented the decision on each hypothesis.

Table 4.3: P-values, T-statistics and hypothesis testing

Hypothesis	P-values	T-statistics	Hypothesis testing
H1: CD \rightarrow IMP	0.059	1.890	Not supported
H2: BD \rightarrow IMP	0.027	2.219	Supported
H3: ED \rightarrow IMP	0.000	4.385	Supported

These results indicated that H1 is not supported, meanwhile H2 and H3 are supported. Therefore, it was found that from H2, the behavioral determinant positively influences the secure information sharing of Islamic NGO through social media and from H3, the environmental determinant positively influences the secure information sharing of Islamic NGO through social media. However, from H1, we found that personal/cognitive determinant does not positively influences the secure information sharing of Islamic NGO through social media.

4.4 Analysis of social cognitive framework

The second objective of this study is to develop social cognitive framework for secure information sharing by Islamic NGO in spreading social mission using social media. The social cognitive framework was developed after the factors of secure information sharing of Islamic NGO through social media was identified. The three determinants or factors that affect and influence the secure information sharing of Islamic NGO using social media are personal/cognitive factor, behavior factor, and environmental factor.

There are three factors in Social Cognitive Theory which are personal/cognitive factor, behavior factor, and environmental factor. In the research conceptual framework, the three factors of cognitive determinants, behavior determinants, and environmental determinants were proposed to have an impact on secure information sharing in NGO activities using the hypotheses in this study. Data was collected to examine the proposed framework. The results in figure 4.5 below demonstrate that cognitive determinants have no significant impact on secure information sharing of Islamic NGO through social

media. Meanwhile, behavioral and environmental determinants have significant relation to secure information sharing of Islamic NGO through social media.

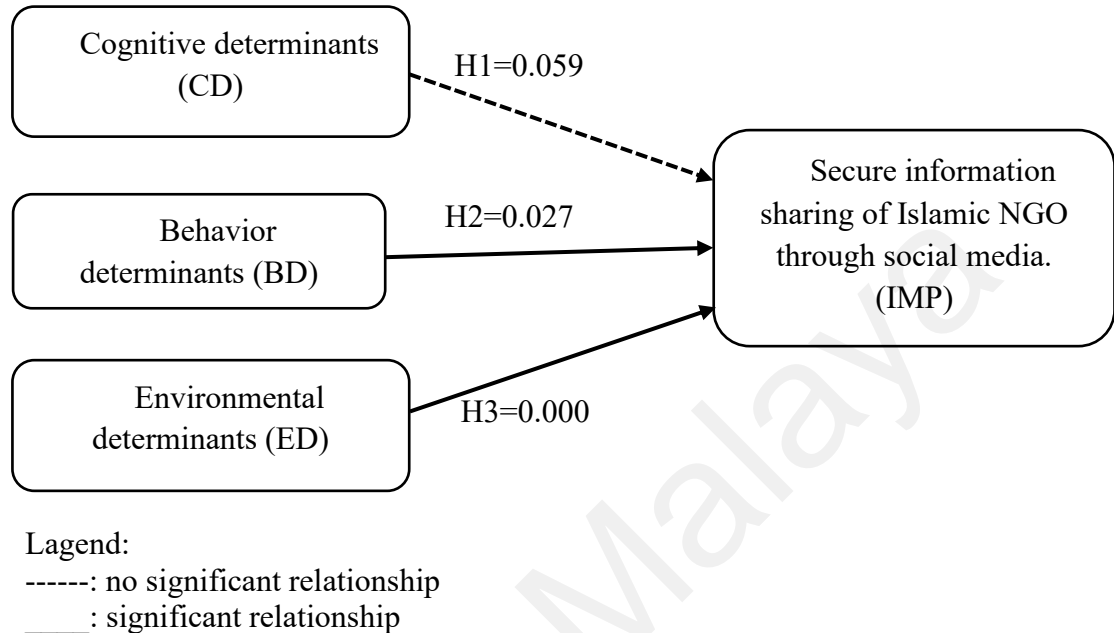


Figure 4.5: Social cognitive framework for secure information sharing of Islamic NGO

In this study, personal/cognitive determinants have no significant relationship on secure information sharing of Islamic NGO through social media. The results of the hypothesis show personal/cognitive determinants has P-value of 0.059 which is more than the value for significant which is 0.05. The other two determinants, behavior and environmental determinants, show P-value of 0.027 and 0.00, respectively, and the value is less than 0.05. Hence, the results show that behavior determinants and environmental determinants have significant relationship on secure information sharing of Islamic NGO through social media.

The significant relationship of the behavioral determinants or the action taken by an individual in doing something or outcomes achieved after a behavior done in this study, refers to the behavior of secure information sharing between Islamic NGO members using social media. As they use social media, it is important for users to make sure the information they share is reliable and accurate. Secondly, it is also important to rely on the information security of social media to keep discussions and interactions between NGO members safe and secure. The use of social media with safe and reliable source will make sure that users will use of social media for a long time and secure the information sharing of Islamic NGO using social media.

The other one significant relationship is the environmental determinants, which involve external factors such as the privacy and security settings on social media or the support from NGO, friends or family. The data collected show that NGO members strongly agree that training on using security features of social media is very important to every member of an NGO, especially during this time the social media is widely used nationwide. Secondly, it is important that policies about social media usage in NGO protect their NGO privacy. Lastly, the members of NGOs give full support to the use of the information security of social media in their activities and social mission. The support from environmental factors helped in secure information sharing on Islamic NGO social media. They can use social media as sharing medium if they have guarantee on reliable environment and secure in security and privacy settings.

All the secure information sharing includes policy and security settings in social media that helped in NGO activities and social missions; faster information dissemination, and secure communication and interaction between users. Besides that, the information

security of social media keeps the information accessible to the authorized person. Users can also always contact social media help centers when risky and harmful information is presented during social media usage.

All the three determinants are important factors in the secure information sharing of Islamic NGO through social media. When sharing information happens, all these three determinants are included to make secure sharing happen. Personal/cognitive determinants influence the environment and behavior factors; environment influences the person's cognition or personal and behavior, and lastly, behavior is influenced by personal/cognitive and environmental factors. Thus, the use of social cognitive framework is important in this study as all the three determinants support secure information sharing of Islamic NGO through social media.

4.5 Validation of social cognitive framework

In order to address the third objective, which is to verify social cognitive framework for secure information sharing by Islamic NGO in spreading social mission using social media, the framework needs to run coefficient analysis. The structural model (inner model) analysis was conducted to ensure the structural model used in this study is accurate and can be seen using indicator such as coefficient value (R^2), R-squared value (R^2) intends to measure the influence of independent and dependent latent variables, which means the secure information sharing influence on the three determinants. The R^2 value deals with the squared correlation between variables actual and predicted endogenous latent values. The coefficient value denotes the three latent variables which

are personal/cognitive determinants, behavior determinants and environment determinants on the variance in secure information sharing on Islamic NGO social media.

The predictive accuracy of the coefficient value score needs to be higher as the range is between 0 and 1 (Hair, Hult, Ringle, & Sarstedt, 2017). As the value is towards 1, the level of predictive accuracy is high. The social cognitive framework developed in this study shows the coefficient of determination (R^2) is 0.584 and moderately explain 58.4% of the three determinants on the secure information sharing on Islamic NGO social media. This indicates that the social cognitive framework used in this study is significant for secure information sharing by Islamic NGOs in spreading social missions using social media because the value is moderately towards 1.

This study assumed that personal/cognitive determinants (CD), behavioral determinants (BD) and environmental determinants (ED) to predict the secure information sharing on Islamic NGO through social media (IMP). R-squared values were then used for analyses of the relation between the determinants and the secure information sharing of Islamic NGO through social media. The important inferences that can be concluded from this research is that secure information sharing on Islamic NGO social media expands with the personal/cognitive determinants, behavior determinants and environmental determinants. All the three determinants influence of social media usage especially in information sharing by Islamic NGO.

4.6 Summary

This chapter discusses the results from data collection. The data were analyzed using the SEM-PLS method and the research hypotheses were evaluated and tested. From the results, it was found that hypothesis 1 is not supported, which is personal/cognitive determinant does not positively influence the secure information sharing of Islamic NGO through social media. Meanwhile, hypotheses 2 and 3, the behavioral determinants and environmental are positively influence the secure information sharing of Islamic NGO through social media. The social cognitive framework predictive accuracy in this research shows the coefficient of determination (R^2) is 0.584 and indicating significance of predictive accuracy. This shows the significance of developed framework for secure information sharing by Islamic NGO in spreading social mission using social media.

CHAPTER 5

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CHAPTER 5: DISCUSSION

5.1 Introduction

This chapter discusses the research objectives and hypotheses for the data analysis after the survey has been collected. The analysis of the data was done using the SEM-PLS method as per discussed in the previous chapter. In structural equation modeling, there are two types of measurement scales; it can be formative or reflective. In this study, the reflective model assessment was carried out. The results were shown in the measurement model analysis and structural model analysis, and finally, hypotheses were evaluated and tested. During this process, all hypotheses were proved to be right or wrong and also related to the first three objectives as per mention in the first chapter.

Below are the three main hypotheses that were carried out to be proven during this data analysis.

H1: Personal/cognitive determinant positively influences the secure information sharing of Islamic NGO through social media.

H2: Behavioral determinant positively influences the secure information sharing of Islamic NGO through social media.

H3: Environmental determinant positively influences the secure information sharing of Islamic NGO through social media.

5.2 Discussion of the research objectives

This research has developed three research objectives and are discussed throughout this study. The next section has been discussed on how the research objectives have been achieved throughout the research.

Objective 1: To identify factors that influences secure information sharing practices of Islamic NGO in spreading social mission using social media.

In the literature review chapter, we found that there are several factors that influence secure information sharing practices of Islamic NGO in spreading social mission using social media. Non-profit organizations are using all mediums of social media to spread out their activities or programs such as Twitter, Facebook, WhatsApp, or even blogs owned by the organizations or owned by the members. Usually, communities in these non-profit organizations use social media as their medium of interaction. Social media as tools that facilitate sharing the content, for example in Facebook, people can share their thoughts about something and can spread the information between them.

The awareness and motivation of social media for sharing information by an individual will lead to the use of social media in the very long term. They must make sure the information sharing is secure and reliable source before forwarding the information to another user. The users also have knowledge on the security use while using social media and aware of privacy and security threat in the use of social media platforms will keep using social media in sharing information.

Users will make sure to forward the information from a reliable source and at the same time practice privacy and security features on social media as they are aware of using safe social media. Consequently, they will use it for a long time and increase the sharing of information via social media platforms.

There are also security and privacy settings in social media that have been practiced by NGO members to ensure their account is safe. Some of the features include social authentication to make sure the account is logged in by the right user. For example, Facebook will identify odd behavior using its social authentication to make sure that the account is in the right user. If someone tries to log on with the same username and password while the user logs on, he will then be forced to look at a set of pictures and identify the names of people.

Objective 2: To develop social cognitive framework for secure information sharing by Islamic NGO in spreading social mission using social media.

Objective number two, which is to develop a social cognitive framework for secure information sharing by Islamic NGOs in spreading social missions using social media, has been addressed in the literature review and results section. The users of NGOs tend to use social media as they know that social media is a platform for information sharing. However, they need to be more careful when sharing data or information about social missions or charity work, and so on. Using the security features in social media, the dissemination of information can be shared securely.

The security of social media behavior is controlled by environmental influences such as privacy and security features of social media and personal/cognitive factors such as the knowledge or motivation in using social media as the platform for secure information sharing by Islamic NGOs. Each of the determinants identified several factors that are affecting and reciprocal to each determinant. These determinants have been tested via the development of the framework which addresses objective number two.

The sharing of information by Islamic NGO takes all the three determinants into consideration when use social media to make secure sharing happen. Personal/cognitive determinants influence the environmental and behavior determinants; environment influences the person's cognition or personal and behavior, and lastly, behavior is influenced by personal/cognitive and environmental factors.

As shown in figure 4.6 in previous chapter, the results from data collection show that cognitive determinants have no significant relationship on secure information sharing of Islamic NGO through social media and indicate that hypothesis one is not supported. The other two determinants, which are behavior and environmental determinants, have significant relationship in secure information sharing of Islamic NGO through social media and denote that hypotheses two and three are supported. Table 5.1 below shows the determinants with no significant and significant relationships.

Table 5.1: The significance of social cognitive framework

Cognitive determinants	Behavior determinants	Environmental determinants
Knowledge sharing (Alsmadi & Prybutok, 2018)	Ethical behavior (Bavik, Tang, Shao, & Lam, 2018)	Usefulness and reliable information sharing (Rajabion, Nazari, Bandarchi, Farashiani, & Haddad, 2019)
Motivation in using social media (Alsmadi & Prybutok, 2018)	Sharing of knowledge (Rajabion, Nazari, Bandarchi, Farashiani, & Haddad, 2019)	Features of social media will have impact on the use of social media (Lin & Chang, 2018)
Self-efficacy belief (Brown & Lent, 2019)	Promotes trusting relationship (Rajabion, Nazari, Bandarchi, Farashiani, & Haddad, 2019)	Environment that supports knowledge sharing (Rajabion, Nazari, Bandarchi, Farashiani, & Haddad, 2019)

The results demonstrate that personal/cognitive determinants have no significant relationship in secure information sharing on Islamic NGO through social media. This finding is similar to studies from Alsmadi & Prybutok (2018) which conclude the motivation for using social media in knowledge sharing and perceived usefulness has no significant influence on information sharing. This maybe due to users not being keen to share their personal and confidential information such as financial accounts credentials or photos. Only some experienced users are more confident to use online system and technologies.

Behavior determinants show result of significant relationship in secure information sharing on Islamic NGO social media. Ethical leadership matter support in knowledge sharing among user (Bavik, Tang, Shao, & Lam, 2018). For example, the NGO itself support the secure information sharing via social media. The perception of NGO members is that it is important to share reliable and accurate activities and social mission on social

media. Secondly, it is also important to rely on the information security of social media to keep discussions and interactions between NGO members safe and secure.

Environmental determinants have significant relationship in secure information sharing on Islamic NGO social media. This finding is similar to study from Rajabion, Nazari, Bandarchi, Farashiani, & Haddad (2019) that social factors or environmental factors are important and have impact in knowledge sharing using social media. Usefulness and reliable social media features can optimize the secure information sharing of Islamic NGO through social media. The use of social media also has impact with the interactive features of social media, which include safe and secure features. If they are aware of security practices when using social media, they can share the information and forward the messages with no wrong messages or recipients. The NGO itself can make a policy of information security for their members. For example, when they want to post something, they need to check the source and reliability before forwarding the message. By doing this, we can make sure the information they post is reliable.

Objective 3: To verify social cognitive framework for secure information sharing by Islamic NGO in spreading social mission using social media.

In order to address the final objectives, the framework needs to run coefficient analysis. As for validation of the social cognitive framework, we found that the framework is at a predictive value of 58.4% higher levels of predictive accuracy and significance. Thus, the social cognitive framework used in this study has a significance relationship between the three determinants for secure information sharing by Islamic NGOs in spreading social missions using social media. From the results that have been

conducted, all the determinants in social cognitive theory have played an important role in influencing the impact in secure information sharing of Islamic NGOs via social media.

5.3 Summary

This chapter discusses the hypotheses and the research objectives. All the objectives have been achieved and discussed. From the study, a social cognitive framework has been developed based on three determinants identified in previous literature review analyses. After the data were analyzed using the SEM-PLS method, it shows personal/cognitive determinant does not positively influence the secure information sharing of Islamic NGOs via social media. Meanwhile, behavioral determinants and environmental determinants positively influence the secure information sharing of Islamic NGOs via social media. The social cognitive framework predictive accuracy in this research shows the coefficient of determination (R^2) is 0.584, which indicates significance of predictive accuracy.

CHAPTER 6

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CHAPTER 6: CONCLUSION

6.1 Overview

The importance of this research is to discuss factors that influence secure information sharing practices of Islamic NGOs in spreading social missions using social media. After the factors were identified, the framework was developed based on discussions on secure information sharing by Islamic NGOs in spreading social missions using social media. This study used Social Cognitive Theory as a basis to develop a Social Cognitive framework. Lastly, based on the results, it was found that the framework is significant for secure information sharing by Islamic NGO in spreading social mission using social media.

The security problems that arise from the increase in the dissemination of information through social media increases can be mitigated using proper and appropriate techniques. Therefore, as long as social media can disseminate information and users can interact with others, then the person should know that the information they receive is secure before they share the information. The personal/cognitive factors, behavior, and environment are interrelated to each other in the security practices in the usage of social media.

6.2 Implications

The implications of this research will help in social media studies, especially those focusing on security and privacy boundaries. Most users must be extra careful when using

social media as their main platform for communication and sharing information. Thus, security and privacy play an important role in using social media sites.

6.3 Limitations

This research limits its scope within NGOs based on education. This is because most NGOs are using social media as their platform to communicate with each other and with the community. The context of the research also focuses on WhatsApp and Facebook as social media chosen due to they have been mostly used by users around the world.

6.4 Future research and recommendations

It is recommended in future research to include business organizations in using social media as their main platform for communication. The study should involve more types of social media. This will make the research become broad and more issues to be discussed.

6.5 Summary

In the first chapter of this research, there was a discussion on the background of social media used by users around the world. The number of social media users is increasing every day. The connection between people around the world becomes easier. However, this wide sharing also comes with its cons. The problem background was discussed in the first chapter. First, there are information validity issues. Most users are sharing information without boundaries. The reliability of the information has become a problem

for users. If users just forward or share messages without checking the source, then the information will become useless. It will affect not only the users who are the first sharing but also the users who are sharing the same information. The worst-case scenario could involve slandering, which is bad for any individual or organization. Secondly, related to privacy issues. If the information from the NGO is not private and just shared without boundaries, there will be many consequences from this action. For example, in daily life, if users are posting their life on social media, any bad people will see the post and they will react to this post and may do something bad to the user. Lastly, the wrong recipient of information. When a user wants to forward and share some messages, they should be aware with whom they will share the information. If they are sent to the wrong person or an unrelated person, the information will lead to misunderstanding and misinterpretation of the messages. Bad things can happen if the recipient manipulates the information. The right thing to do is to check before forwarding the messages and making sure the messages will be forwarded to the right person. After that, the objective of the research has been determined which arises from the use of social media among NGO members. After that, the discussion continued with the objective and research questions. This chapter also discussed the scope of research, which is social media use among Islamic NGO. The main social media platforms chosen are WhatsApp and Facebook, since these two are mostly used by users around the world. On the other hand, the Islamic NGO chosen is focused on education as their social mission. The reason is that they are more focused on delivering and sharing information rather than business-oriented activities.

In the second chapter, the literature review for each topic was explained. Each subsection of the literature review covers social media usage, the functions used in social media, privacy and security of social media; the definition and functions of NGO, and lastly, the social cognitive theory associated with the usage of social media in NGO. For

profit organizations, they use social media as a medium to market and launch their product or services, strengthen their existing product or services, and also for recruiting and hiring. But for non-profit organizations, they take advantage of social networking sites to stimulate their mission and spread information about what they do, and sometimes they find their members or volunteers through these social networking sites. Non-profit organizations can use all mediums of social media to spread out their activities or programs. Meanwhile, social cognitive theory was used in this study as this theory connected each causal factor. The personal/cognitive factors of the NGO, behavior in using social media and environmental factors from external are three causal factors that are related to each other in this study.

The third chapter focused on the method used in this study. First, quantitative methods were conducted to study the social cognitive framework for secure information sharing by Islamic NGOs in spreading social missions using social media. A survey has been done and data from the NGO on using social media was collected. The respondents were chosen mainly from NGOs focusing on education as their main social mission. There are 73 respondents taking part in this study. A set of questionnaires includes a brief explanation of the background of the respondents and the other part is to answer research questions which have 16 questions. These questions are also related to the objectives proposed in this study. The questionnaire was distributed as a pilot study first and then distributed to the main organizations. The questionnaire was distributed through emails, online survey forms, and in person by meeting them at the seminar or at their office. After that, the data were analyzed using the SEM-PLS method.

In the fourth chapter, data analysis has been discussed based on data collection from the previous chapter. The discussion provides a discussion on quantitative data analysis. The analysis of the data was done using the SEM-PLS method. First, the formative and reflective model assessment was carried out; then the structural model analysis, and finally, hypotheses were evaluated and tested. During this process, all hypotheses were proved to be right or wrong. From the results, it was found that from H2, the behavioral determinant positively influences the secure information sharing of Islamic NGOs through social media and from H3, the environmental determinant positively influences the secure information sharing of Islamic NGO through social media. However, from H1, we found that personal/cognitive determinant does not positively influences the secure information sharing of Islamic NGO through social media. From the result of the coefficient value, it shows that the level score is 0.584 and indicating significance of predictive accuracy. Hence, the social cognitive framework used in this study is significant for secure information sharing by Islamic NGOs in spreading social missions using social media.

In the next chapter, which is chapter five, the discussion on the research objectives and research questions. All the objectives were explained and elaborated as they have been achieved throughout the research. The hypotheses also have been discussed through the data analysis results.

In the last chapter, the conclusion of this study has been discussed. There were limitations and future research and recommendations have been discussed as well. After that, the summary of all chapters has been explained and summarized in this chapter. It is recommended in future research to include business organizations in using social media

as their main platform for communication. The study should involve more types of social media to show the use of social media is growing these days.

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