PERSUASIVE TECHNOLOGY IN DA'WAH: MUSLIM COMMUNITY HEALTH CARE DURING COVID-19 IN SINGAPORE

*iNek Mah Batri

iPusat Pengajian Tinggi al Zuhri, Singapore

Corresponding Author; e-mail: *nek_mahb@hotmail.com

ABSTRACT

The use of persuasive technology in *da'wah* is a technique to raise awareness of the importance of changing perceptions and behaviours for health care in the use of the COVID-19 vaccine. Surveys of several countries including Singapore show there is still a part in the Malay community that is hesitant to receive the vaccine even for free. The result shows that the elderly are still sceptical about the COVID-19 vaccine even though they are at a higher risk of being infected. This paper aims to discuss and analyse the concept of persuasive technology from an Islamic and Western perspective to ensure that the use of persuasive technology in *da'wah* can be applied according to their existing understanding. Both conceptual analysis and empirical observation were used throughout this study to collect data related to the problems mentioned and then analysed. This study shows that persuasive technology can be successfully applied in *da'wah* through communication strategies and preferred channels to obtain more information on the safety and effectiveness of vaccines and equity issues by continuing to provide strong policy messages and support.

Keywords: Persuasive Technology; Da'wah; Healthcare; Vaccination

INTRODUCTION

Covid-19 vaccine programme is being rolled out across the world and communities are generally well-informed about the benefits and potential side effect of vaccines. However, given the speed of vaccine development and reports of adverse reaction, it is understandable that some are worried about getting their shots. Others may question about the risks and the side effects, also the ingredients of the vaccines. Although a vaccine is on the horizon, but most Singaporeans are adopting a wait-and-see attitude as the safety of COVID-19 vaccine is

still in the process of being evaluated by Health Science Authority (HSA).

A survey of 515 respondents at Duke-NUS graduate school by Professor Erik Finkelstein in September 2020, found that 20 percent or more respondents do not want to be vaccinated even if it is for free. Older Singaporeans seem to be [1] Pusat Pengajian Tinggi al Zuhri, Singapore more hesitant about getting vaccinated, said Saw Swee Hock School of Public Health's, Assistant Professors, Wee Hwee Lin, et al, 2020 (CNA, 9 Dec 2020) In an analysis of COVID-19 vaccine on 100 comments related to Facebook posts made by three major English news outlets in Singapore (Straits Times, CNA and Today) over the period of 27 August to November 2020 using both qualitative and quantitative technique by Dr Aravind Sesagiri Raamkumar of the Swee Hock School of Public Health, found that sentiments expressed were generally positive; with two or more positive sentiments expressed for each negative sentiment. Among the negative comments is whether the COVID-19 vaccine in Singapore is needed as the number of deaths associated with the issues is lower as compared to other countries.

Of all the demographic factors that influence the attitude and willingness to be vaccinated, it is found that age is a major factor. A survey conducted on individuals aged 35 years and below was found to be more likely and willing to be vaccinated at any time (42 percent) compared to individuals aged 36 years and above (13 percent). At the same time, it was found that individuals aged 36 years and above were more likely to say they did not want to be vaccinated (23 percent) compared to individuals aged 35 years and younger (17). This finding is consistent with previous studies among adults aged 65 and over in Singapore on influenza vaccine by Professor May Oo Lwin at Nanyang Technological University (Ang L.W. et al, 2016), where there is a lack of vulnerability, fear of side effects, and influenza violations are the reasons cited for getting the vaccine. The reasons for not taking the COVID-19 vaccine in the elderly may be different this time. Anecdotally, there is a sense of vulnerability to COVID-19 among the elderly, but fear of side effects dominates.

RELATED RESEARCH

In encouraging the vaccine, Singapore once again faced questions about the content of vaccines from the Muslim community in Singapore because it was   feared to contain substances that could violate Islamic law as well as contrary to the traditional attitude that treatment can be done depending on spiritual sources. Thus, further investigation knowledge, attitude and belief towards COVID-19 are required. There is still a lot of work to be done to

better understand the knowledge, attitudes, and beliefs of the people of Singapore about the COVID-19 vaccine and not only to the Muslim community, so that scientists and the Government can help answer the questions clearer with accurate communication about vaccines and their effects and safety for a successful vaccination program. Therefore, the authorities need to increase the resources that convince the public to vaccinate individuals instead of waiting for the number of cases to increase, so as to cause fear in each individual and the country.

As the Covid-19 vaccination programme accelerated, optimism about its effectiveness has been rising; several studies in the United Kingdom (UK) show that vaccine hesitancy is more prevalent among people from minority ethnic backgrounds, with fears partly due to distrust of the health care system. This research has shown that other than public health concern about safety, efficacy and distribution mechanisms, vaccination also instigated complex socio-religious controversies. Surveys of several countries including Singapore show there is still a part of the Malay community that is hesitant to receive the vaccine even for free. The results show that the elderly are still sceptical about the COVID-19 vaccine even though they are at higher risk of being infected with the COVID-19 virus.

The use of persuasive technology in *da'wah* is a framework for planning and evaluating behavior change support systems and their application for health care during COVID-19. This initiative is used as a technique to raise awareness of the importance of changing perceptions and behaviors in the use of the COVID-19 vaccine. In today's context it has become the norm for people to prefer to communicate through technology to transfer knowledge to convince someone to change their attitude or the way they behave. Hence, it requires persuasive communication defined as "human communication designed to influence the judgment and autonomous actions of others" (Herbert Simon, 2000). In addition to traditional interpersonal conversations, there is an also computer-human or computer-human interaction (Harjumaa, et al, 2007). Human-computer persuasion means that no one else communicates or sends persuasive messages, but changes in attitudes or behaviors occur in interactions between humans and computers. Persuasive technology is a deliberate computing system, device or application designed to change a person's attitude or behavior in a predetermined way (Fogg, 2003).

Since there is no naturally convincing communication, new technologies are not necessarily persuaded. Persuasive technology does not focus on attitudes or behaviors changes that appear as side effects but are attracted to the planned effect. Therefore, there is always

seriousness involved in expansion, distribution, or the use of persuasive technology (Fogg, 1998). Too often, the system is developed from a functional point of view - how it meets functional needs customers, how they fit into the existing process, or they are designed in so that it is easy to use. Therefore, to succeed, they too must design to be driven by consumer value (Ervasti, 2013; Isomursu et al, 2011). Also, if its use should give rise to attitudes or behavioral change, persuasive design plays an important role. Behavior Change Support System (BCSS) is a sociotechnical information system with psychology and results of behavior, and they are designed to shape, change, or reinforce attitudes, behavioral or compliance actions without the use of coercion or deception (Oinas-Kukkonen, 2013). BCSS provides content and functions that engage users with new behaviors, make them easy to engage and support users in their daily lives (Oinas-Kukkonen, 2013).

Few people think about the importance of lifestyle in determining our health. It is the only best opportunity to improve health and reduce premature death, whereas medical treatment plays a relatively small role. Determinants of health includes: environmental exposure by 5 percent, health care by 10 percent, social conditions by 15 percent genetic predisposition by 30 percent, and behavior pattern by 40 percent (Schroeder, 2007). However, studies show that people unwilling to change their behavior. According to health care professionals, patients' reluctance to change their habits is a major obstacle to treatment lifestyle-related conditions (Jallinoja, 2007).

It has been stated that the persuasive system shows the potential to help in improving healthy living, reducing the cost of the health care system, and allowing individual to maintain a more independent life (Chatterjee, 2008). Technology has the potential to process dynamic and unbiased information, which allows people to monitor their own progress and be informed about specific risks for emerging context and motivation (Catriona M. Kennedy, 2012). Thus, this paper aims to discuss and analyze the concept of persuasive technology from an Islamic and Western perspective to ensure that the use of persuasive technology in *da'wah* can be applied according to their existing understanding. However, assessing ethical concerns are important element in persuasive technology. Hence, it should be considered that values and beliefs vary from one culture to another, so there is no direct solution that will surely satisfy everyone, and no ethical procedure or set of principles can be easily applied to every situation.

Persuasion in Islam is a practice between two parties, when one party seeks to change the other or to change the other party's awareness of certain behaviors, such as contributing, praying immediately, and caring for the elderly. Islamic principles remarkably highlight the

employment of a persuasive method to boost the creation of robust relationships between humans and Allah SWT throughout commitments to His instructions and by performing appropriate deeds to acquire the reward from Allah SWT.

Rahman (2016), states that from a religious point of view, dialogue and persuasion are applied as a moral approach in the work of Islamic *da'wah*. "*Da'wah*" means "invitation," or is known as an act of worship by explaining to the audience things about religious understanding and practice rather than manipulating or forcing them to engage in it. Allah SWT says:

ٱدۡعُ إِلَىٰ سَبِيلِ رَبِّكَ بِٱلۡحِكۡمَةِ وَٱلۡمَوۡعِظَةِ ٱلۡحَسَنَةِ

(An-Nahl verse 125)

Which means: Call to the way of your Lord (O Muhammad) with wisdom and good teaching advice and discuss with them (whom you call) in a better way.

Therefore, it is strongly recommended that the main guidelines of persuasive technology depend on the Islamic point of view on moral issues, which are sourced from the Quran and hadith.

METHODOLOGY

Both conceptual analysis and empirical observation were used throughout this study.

a. Design science research methodology

Design science is a paradigm in information systems science to understand, implement, and evaluate research aimed at designing new and new artefacts aims to solve the organizational problems identified (Hevner, 2004). Artefacts can be defined methodologies for both production and design science research presentations. It includes six practical activities (See Figure 1).

The design science research approach has been chosen as the research approach because it provides a methodology for finding solutions for real life Behaviour Change Support System (BCSS) development problems and producing research results relevant in practice.
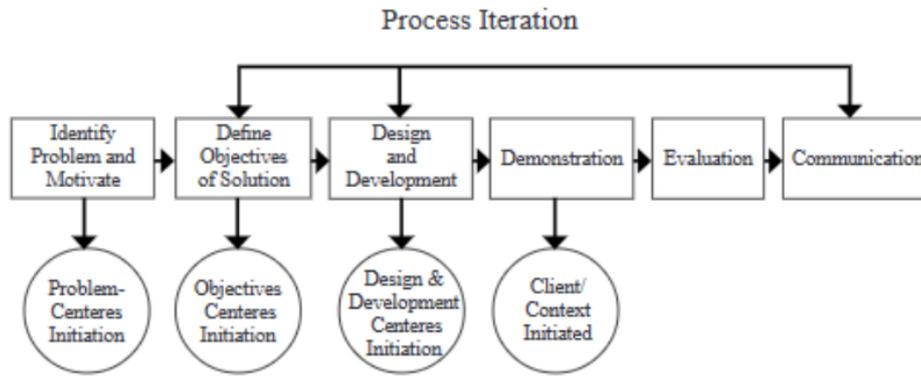
Figure 1. Design Science Research Process Model (Peffer, 2007)

b. Case study

Case study research has been applied in all individual studies presented in this paper does not include a conceptual study based on theoretical analysis but include two key design researches that shows the practical relevance of the problem and its solution.

Benbasat (1987) has given the definition of case study: "Case study examines phenomena in natural conditions, using a variety of data methods collection to gather information from one or more entities (people, groups, or organizations). The limitations of this phenomenon cannot be clearly seen in the beginning of research and no control or manipulation of experiments used".

This method was chosen because it provides a methodology for studying phenomena in the natural context. Furthermore a case study approach can be applied in design scientific research as a method of validation, for example. Both approaches associated with practical orientation; capture the knowledge of the practitioner (Benbasat et al. 1987) and the provision of solutions to practical problems (Hevner et al. 2004).

Case research strategies typically use a variety of data collection methods and ideally evidence from a variety of sources will gather to support the findings of the study (Benbasat et al.1987), Yin (2009) list possible sources of evidence used in case studies: documentation, archive records, interviews, direct observation, participant observation, and physical artefacts.

Using various methods of data collection and processing with fellow researchers improving the data accuracy. During research reported results are important for the purpose of showing richness of data, set a clean chain of evidence and show the effect in the researcher's study reasoning (Benbasat et al.1987).

RESULT OF ANALYSIS

Singapore received the first batch of Pfizer-BioNTech COVID-19 vaccines on 21 December 2020. Following this, the COVID-19 Vaccination Specialist Committee proposal on vaccination strategies for Singapore was accepted by the Government.   The Moderna COVID-19 vaccine has been approved for use in Singapore in people 18 years of age and older. The first shipment arrived in Singapore on 17 February 2021.

Details of the Moderna COVID-19 vaccine: for individuals 18 years of age and older; requires two doses given within 28 days and a high vaccine effectiveness of 94 percent. Two groups of experts from the Medical Advisory Committee of the Health Science Authority and the Infectious Disease Panel were consulted during the survey to ensure the vaccine is safe, effective, and quality based on the data submitted to date. The benefits outweigh the known risks for Singaporeans.

However, pregnant women, people with severe immunity and those under the age of 18 should not receive the Moderna COVID-19 vaccine because safety and efficacy data for this group are not yet available. Like all vaccines, side effects such as swelling at the injection site, fatigue and fever are common. There are always a small number of susceptible people who may experience severe allergic reactions during vaccination. They include those with a history of anaphylaxis (onset of severe allergic reactions) or severe or multiple allergies to medications and foods.

The following chart shows the tracks policies on the availability of vaccination but does not track the number of people who have been vaccinated.

Chart 1: COVID-19 Vaccination Policy, 25 February 2021.

Imperial College London YouGov Covid-19 Behavior Tracker Data Hub collects global views on human behavior in response to COVID-19. This survey covers the behavior and attitudes of the community ranging from wearing a mask to isolation, social distance, symptoms, and tests. The following chart shows monthly data on community readiness to receive the COVID-19 vaccine.
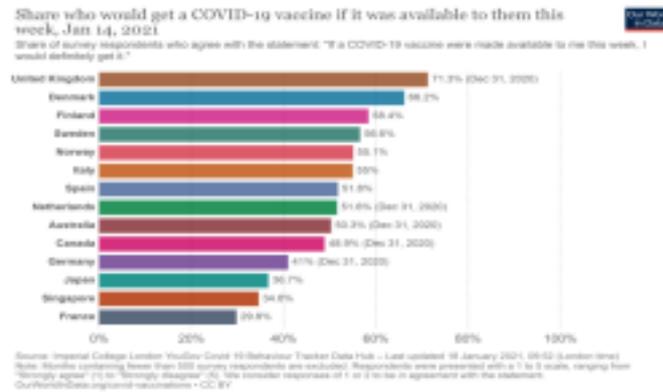

Chart 2: Monthly data on community readiness to receive the COVID-19

The National Immunization Technical Advisory Group (NITAG), The Ministry Health (MoH) with the support of UNICEF and WHO, conducted an online survey in Indonesia to understand the views of the community, perceptions, and concerns about COVID-19 vaccination. Survey showed that respondents aged below 18 years of age made up 3 percent of the total respondents. These respondents were asked about their interest in and sources of information about COVID-19 vaccines and their preferred channels of communication. Most of the respondents (76 percent) were 18 to 45 years of age, and more than 1 percent of respondents were over 65 years of age and survey result on COVID-19 acceptance by religious beliefs (see Chart 3 and 4).
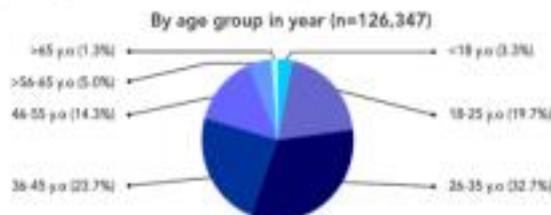
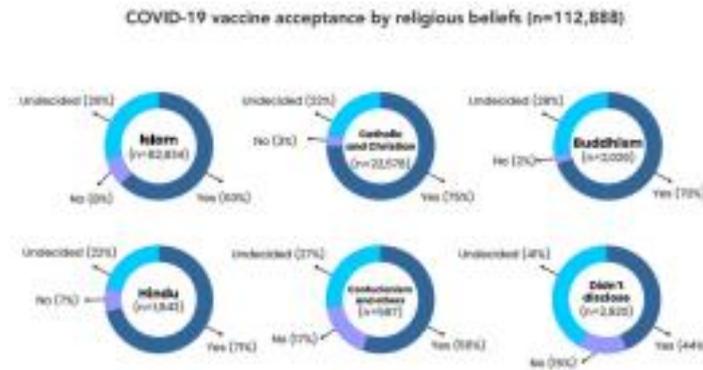

Chart 3: By age group in a year

Chart 4: By religious belief

Respondents raised serious concerns about the safety and effectiveness of vaccines, expressed a lack of trust in vaccines and raised concerns about the category of illegal-halal vaccines. The most common reason for not receiving the COVID-19 vaccine is concerns about the safety of the vaccine (30 percent); uncertainty about vaccine effectiveness (22 percent); lack of confidence in vaccines (13 percent); fear of side effects such as fever and pain (12 percent); and religious beliefs (8 percent). The following chart shows the common reasons for not accepting vaccines.
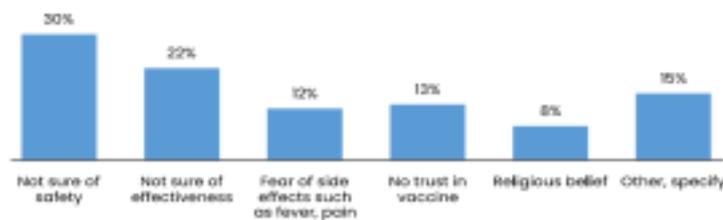

Chart 5: Common reasons for not accepting vaccines

Administration of Muslim Law (Chapter 3, Section 32), Fatwa Issued by the Fatwa (Legal) Committee, Islamic Religious Council of Singapore. The Fatwa Committee discussed the questions it received from the Health Science Authority (HSA), at the 21st meeting, dated 28 February 2013) on rotavirus vaccine that can cause vomiting, fever, and certain cases. The rotavirus vaccine was concluded halal and pure by the Fatwa Committee, as the impure elements has been removed from the final product. MUIS said a COVID-19 vaccine is permissible for use by Muslim as it is a basic necessity to protect lives in the context of a global pandemic (muis.gov.sg).

Fogg (2009) presents a new model with the objective of understanding human behavior, showing that behavior is influenced by three factors of ability, motivation, and triggers. This model is known as the Fogg Behavior Model (FBM). This model assumes that whenever a person wants to achieve a particular behavior, the person must be effectively motivated, have sufficient ability to perform certain behaviors and be triggered to complete the target behavior (See Figure 2).
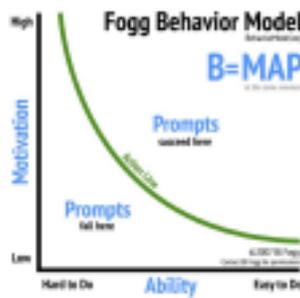

Figure 2: Fogg Behaviour Model

Muhammad Abdullah Bawazir, et al, 2009, found that Information and Communication Technology (ICT) is formed of three components, in particular: human hardware, hardware and software. To date, however, aspects of human hardware are not often explained, despite the fact that the heart device is the most important component associated with human software. Without a proper understanding of the subject, the understanding of ICT will not be complete. In a similar way, persuasive technology designers need to have the intention to produce persuasive products that represent Islamic ethics to influence end users in the right way that will lead to ethical-related end results (See Figure 3):
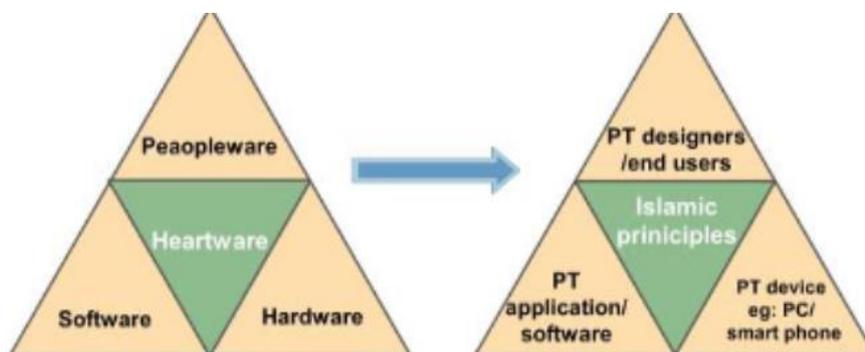

Figure 3: ICT components for persuasive technology in Islam (PT: Persuasive Technology)

DISCUSSION

Throughout the studies, it is found that although the vaccine is on the horizon, most Singaporeans are adopting a wait-and-see attitude as the information on the safety of COVID-19 vaccine is still in the process of being evaluated by Health Science Authority (HSA). However, the result of analysis found that after the COVID-19 vaccination policy was issued on 27 February 2021 as at Chart 1 byImperial College London YouGov Covid-19 Behavior Tracker Data Hub, the data on community readiness to receive the COVID-19 vaccine has changed drastically as shown in Chart 2, compared to the survey result from Professor Erik Finkelstein in September 2020 of which 20 percent or more respondent do not want to be vaccinated even if it is free. Although the chart does not show the acceptance of COVID-19 vaccine among the Malay community in Singapore this information motivates to find another solution through the design science research.

Based on the results of online survey analysis in Indonesia to understand public views, perceptions, and concerns about COVID-19 vaccination and research conducted Dr Aravind Sesagiri Raamkumar in year 2017, found that sentiment expressed was generally positive, with two or more positive sentiments expressed for each negative sentiment (Straits Times, CNA and Today, 27 August to 27 November 2017). Among the negatives comments is whether the COVID-19 vaccine in Singapore is needed as the number of deaths associated with the issue is greatly reduced compared to other countries involved in the virus, it is found that age is a major factor as shown in charts 3 and religious beliefs (Chart 4) as well safety and risk factors, lack of religious confidence and belief are among the factors affecting the willingness to take the vaccine as shown in Figure 2.

The results of the analysis study found that all the information related to the COVID-19 vaccine issues were shared with the Muslim community in the MUIS's website: Administration of Muslim Law (Chapter 3, Section 32), Fatwa Issued by the Fatwa (Legal) Committee, Islamic Religious Council of Singapore. Despite of all the efforts from MUIS and the reminder from Ministry of Health, Gan Eng Seng to those who decided to wait and see, may be on a higher risk to get the vaccine in future as it is subjective to the supply of vaccine in Singapore, but there are still rumours about the COVID-19 effectiveness. Hence, it is therefore necessary to think of an approach that can persuade them especially the elderly to open their minds with a technological persuasive *da'wah* approach. However, to build the confidence and strength of each of individual Muslim, it needs a persuasive stimulus which

can be done by integrating persuasive technology in *da'wah,* in order to give them the guidance in purifying their soul and heart. Prophet Mohammed SAW said:

أَلَا وَإِنَّ فِي الْجَسَدِ مُضْغَةً، إِذَا صَلَحَتْ، صَلَحَ الْجَسَدُ كُلُّهُ، وَإِذَا فَسَدَتْ، فَسَدَ الْجَسَدُ كُلُّهُ، أَلَا وَهِيَ الْقَلْبُ

(Sahih Muslim 1599a, Book 22: The Book of Musaqah, Chapter 20, Taking that which is lawful and leaving that which is unclear, Hadith 133. This hadith was quoted from the USC-MSA Web (English) In-book reference. Book 10, Hadith 38. Website: Sunnah.com).

Meaning: "Beware, in the body there is a piece of flesh; if it is sound, the whole body is sound and if it is corrupt the whole body is corrupt, and hearken it is the heart"

Thus, based on Fogg, et al, 2009, study of a Behaviour Model (FBM) was developed in the Islamic persuasive technology da'wah strategies as it has a great influence on the motivation, ability (simplicity) and able to trigger the action. The factors of Islamic persuasive technology are discussed as in the following diagram (see Figure 4).
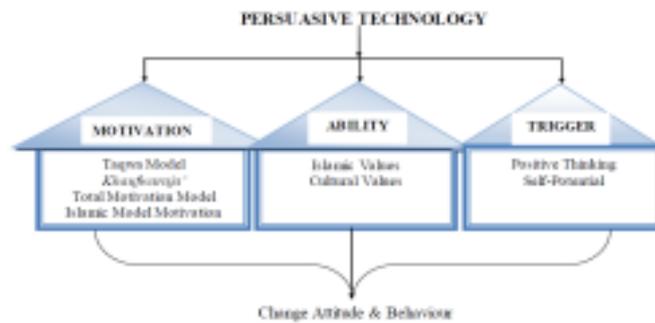

Figure 4: Persuasive Technology Design Factor in Islam

The theory of motivation has been studied extensively by philosophers and thinkers since the ancient time. However, each study has produced different definitions according to the results of their respective studies. According to Griffin (2005), motivation is a group of forces that make people act in a certain way. In other words, motivation can be defined as the desire within a person to stimulate human beings to act (Amin, 2012). Whereas according to Robbin (2005), motivation is the process of determining the intensity, direction, and determination of an individual to reach the goal. Draft (2010) defines motivation as strength either internally or externally towards a person who instils enthusiasm and perseverance to pursue a particular action.

Since motivation is a complex notion associated with humans, Muslim researchers also do their study using a model of existence to understand human beings. Anyway,

according to Alias, et al, 2005, all models only try their best to assimilate western theories on motivation in the Islamic model. In the past 30 years ago, some models of Islamic motivation are proposed by Muslim philosophers and psychologists such as the model of taqwa, khaufwaraja', total motivation model, and Islamic model motivation.

i. *Taqwa* **Model**

This theoretical model inspired by Shafiq Falah Alawney (1998) was constructed from several factors such as *Iman* (faith), *Taqwa* (fear to Allah), *Tahrid* (arousal) and *Tawbah* (repentance). Iman in this model context correlated with the transfer of knowledge which can be distinguish between right and wrong, between good and evil and between lawful and unlawful. Moreover, *Iman* comprises strong Islamic base for directing, educating, and reflecting human's life. *Taqwa* in the context of motivation refers to the fear of Allah SWT by obeying His commands and avoiding His prohibitions. Whereas *Tahrid* refers to feeling of arousal, the desire of believe to get to the highest level of reward, While *Tawbah* means abstain from wrong deed. In conclusion, this theory explains how the three aspects play as external and internal stimuli that can influent the readiness of Muslim community on the COVID-19 vaccines.

ii. **Islamic Model of Motivation**

This model was proposed by Alias, et al, 2005 in which the human soul plays an important role as a moderator variable in increasing or decreasing motivational behavior at different theoretical levels. In summary, this model emphasizes the role of the human soul in fulfilling human needs in performing worship to Allah SWT. Therefore, this model is seen to be able to persuade the souls and hearts of some people in dealing with the issue of the COVID-19 vaccine through a technology-persuasive *da'wah* approach.

iii. **Total Motivation Model**

This model is the combination of materialistic and spiritual which are interdependent and interrelated to each other. It was developed by Ather (2009). As illustrated in the model, iman (spiritual) motivation is the fundamental factor that influences human deeds *(amal),* either does a good deed to enter the heaven or do a bad deed and gets the punishment from Allah in hereafter. Both spiritual and materialistic motivation to help human fulfil their responsibility as a servant and khalifah. This model is seen as a measurement tool that can be integrated in the *da'wah* strategy to add value to individuals in understanding their responsibilities.

iv. *Khauf and Raja'*

Khauffwaraja' is one of the motivation notions of Al-Ghazali in Ihya Ulumuddin scripture. The term of Khauf based from an Arabic word *'khafaa''*, means afraid while, *''Raja'* term came from a word *''raja yarjuu rajaa'an''*, means a yearning or hope. A term of *Khauf* has been mentioned several times in Qur'an (e.g.: in Al-Insaan: 10; Al Sajaddah: 16; Ali-Imran: 75) and *raja'* term as mentioned in Qur'an, Al-Baqarah: 218. According to al Ghazali (2007), motivation is the feeling of fear and hope as a drive to come closed to Allah by choosing a righteous path. Hence, the concept of persuasive technology in da'wah will be based on this notion in explaining of the issues of COVID-119 vaccines. Value is associated with something invaluable and meaningful to a particular person. Values are also inspirations influenced by emotions, needs and goals which will motivate humans to do anything to achieve their goal. The basic values and needs that determine the basis of good individual and social life, are classified into three levels, or hierarchy which consists of needs (dharuriyyat); facilities (hajiat); and perfection (kamaliat). In Islamic legal theory (usul al fiqh) there is a maxim: "the general purpose of law" in Islam is to realise values through protecting and guaranteeing their needs (al dharuriyyat) as well as fulfilling their importance (al hajiyyat) and their embellishments (tahsiniyyat). The basic values of human beings consist of life (al nafs), intellect (al 'aql), lineage (nasab), property (al mal) and religion (al din). Islam protects these core human values, and forbids any violation of them.

a. **Islamic Values**

Islamic principles initially begin with al-Quran, the revelation of the word of Allah SWT, which is full of beautiful expressions and knowledge, as a collection of beliefs and instructions for action without constraints of time, space, and tradition, and secondly from the attributions of the Sunnah ascribed to the last messenger of Allah that characterise his ethical practises.

According to Ahmad (2006), Islamic values can be characterised as a structure that places spiritual obligations with the fundamental principles of transparency, accountability, morality, and reliability. The definition of Islamic value adopts the personal practices of the value system of the Quran and Rasullulah as *'uswatun hasanah'* that represents his glorious personalities such as; *siddiq, amanah, tabligh, fathonah, istiqamah, and qanaah.*

Since Islam is a totally complex and holistic religion, with proper guidance from al-Quran and Sunnah and other Islamic sources, anything that arises can certainly be treated by Islamic values. Islamic values teach us how to act well and prevent misconduct in a positive way (Ebrahimi, 2017), thereby contributing to the key feature of society that applies *amar ma'ruf*

nahi munkar (enjoining what is right and prohibiting what is wrong). Therefore, Islamic values are further defined as always being faithful, doing good deeds and patience. Thus, it provides optimised guidelines for persuasive technology in *da'wah* from the viewpoint of Islamic values, ensuring beneficial result for all.

b. Cultural Values

According to al-Qaradawi (1994), culture is not to satisfy the need of man by his nature, but it is only belief in the almighty Allah that can provide security and peace to the mind and heart of individual. In *Kamus Dewan* (2007), culture is civilization, advance thinking reason or intellect (way of thinking, behaviour and so on). Bond (1988) explains that cultural values do not reflect the individual values and they are not necessarily similar to each other. Hence, cultural values do not allow to predict the behaviour and response of individuals with certainty, yet a working knowledge of how members of a cultural group, in general, think and behave provide a useful starting point for navigating intercultural interaction. The Muslim community needs to have the self-confidence to interact and learn from other cultures. By interaction and learning will allow the Muslim community to forge better mutual understanding and cooperation and broaden the basis for respect and tolerance with other communities. Humans are shaped by ideas and thoughts. The way a person thinks gradually shapes his or her character and identity, which will affect future choices. There has been an increase in academic interest in the topic of positive thinking over the last two decades. This evidence can be seen in the growing number of works devoted to psychology, philosophy and theology of positive thinking published in the West. Islam view thinking as *"ibadah"* (act of worship) and religious obligation (see at *Tafkir Faridah Islamiyah by Abbas Mahmud Al-Áqqlid*). Sustaining a healthy mind and effective state of thinking is considered to be an integral part of the objectives of *(Maqasid al Shari'a)* which implies that sustaining sound thinking and a healthy mind is a fundamental goal *(maqasad)*.

a. Positive Thinking

Ventrell (2001) sees positive thinking as the innate capability to produce desired outcome with positive thoughts, a belief in possibilities even when the facts seem to indicate otherwise. Positive thinking is generally seen as a basic reflection of mental imaging. It is believed that the power of immunity is greatly affected by the mental of unhappiness and emotional distress (Norman Vincent, 1998). Positive thinking, according to Islam manifests itself deeply in the believer's thinking and perceptions of the Creator. The beginning of

positive thinking starts with grasping the concept of *tawhid* and its implication in human life, in addition to adhering to a special lifestyle as a practical expression of faith and submission to Allah SWT. *Tawhid* is not an abstract reflection or philosophical knowledge about the Creator, but rather form the worldview and lifestyle, quality of thinking and the ability to discover and make decisions or adopt attitude.

Positive thinking expresses a profound, yet dynamic human process and proper form of expressing one's feeling, thoughts, and actions. It embraces the multifaceted human capacity granted by the Creator, set according to a higher transcendental farm of reference. The reference of transcendence provides positive thing with a genuine base and supper the various interpretation of social change and circumstance, while at the practical level sustain the fundamental objectives of the *Shari' ah* (Malik Badri, 1995). Hence, positive thinking produces a blend of religion, wellness and development that cause communities to share and enjoy their commitment to positive life. However, the Muslim approach to learning and developing positive thinking require in-depth exploration and diagnosis of Muslim communities that can lead to understanding the psychological and emotion concepts and processes associated with the religiosity of, while illustrating the various impeding the proper interaction when applying the persuasive technology in *da'wah*.

b. **Self-Potential**

Based on Bonnie A. Barlow (2016) research, the definition of self-potential as the creative process of making sense of our experience, finding direction and purpose in life, setting goals, and making plan based on life purpose. Sell potential is closely related to the term self-development as it is used in personality psychology.

However, the self-potential has many domains in conventional personality theories. According to Jung (1933), self-potential can reveal the origin of transpersonal knowledge. In addition to this, according to Inayat (2005), the self potential refers to individual deepest spiritual wisdom through the heart that links to Allah SWT and fulfils Divine unity *(Tawhid),* the devotion aspect of Islam but the development of self-potential must be in accordance with the *Shari'ah.*

CONCLUSION

The concept of the persuasive technology from an Islamic and western perspective can shape the behavior and mindset not only to the Muslim community but all Singaporean as well, as far as Covid-19 vaccines are concerned. However, persuasive technological design needs to be specifically combined with ethical rules and moral values through preferred channels that can balance rational thinking. The preferred channels mentioned here are related to the dissemination of reliable information about COVID-19. Improper content and dissemination of information online can affect risk perceptions and vaccine scepticism. Exposure to websites and social media posts that discourage immunization, even brief, can increase perceptions of vaccination risks while lowering perceptions of benefits. Individuals tend to receive information from various information channels during disease outbreaks. Information channels are relied upon by risk communicators to deliver messages, and communities pull that information and push it into their own networks.

Persuasion is clearly related to influencing people's behavior using a variety of methods. The application and implementation of design factors of persuasive technological principles and strategic tools in Islamic practices and values will enhance persuasive products to target the required attitudes and behaviors.

In addition, developing persuasive technology products that rely on Islamic guidelines can certainly help the work of *da'wah* in increasing the importance of vaccines especially in the elderly. Therefore, the conclusion obtained is that when persuasive technology is used in the *da'wah* process is very encouraging to maintain health during COVID-19 by taking vaccines in order to help themselves and their families and the community around them.

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