

# The 4th Wave Evolution of Digital Citizenship Concept? Proposing Digital Citizenship Concept for Malaysia Context

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## **Abstract**

Online world demands new sets of characteristics to warrant the ability to cope with its constantly evolving challenges and risks. Digital citizenship, a concept introduced, focusing on new ways of learning and exploring in an online environment safely, securely, and appropriately. The evolution of digital citizenship could be seen along with the changes in technology used in education, and requires students to engage with technology longer hours

than before. Thus, how can we approach the challenge of using technology actively and immersively, while maintaining sanity and wellness, and building resilience to potential online risk? Thus, this conceptual paper proposes a new concept of digital citizenship by bridging the notions of wellness and resilience from the psychology discipline into digital citizenship, for its feasibility in the Malaysian educational context. This paper argues the necessity and potential integration of the spiritual element that is lacking in the existing digital citizenship concept, which has proven its significance in enhancing wellness and resilience of adolescent in the literature. It is hoped this fourth wave of proposed digital citizenship concept would bring fruitful discussion and contribute to a better understanding of how one might better socialize online or participate with others in a positive and meaningful way. Thus, only then, digital resilience and digital wellness will be established and a better future online society will be formed.

**Keywords:** digital citizenship, digital resilience, digital wellness, adolescent, education technology

## 1. Introduction

### *1.1 Digital Issues of Adolescents*

Tremendous efforts in diffusing technology in education, exposing the youngster to the potential harms associated with the use of technology in education (e.g. social and mental health problems). For instance, online-based learning causes adolescents to become vulnerable to the seamless online dangers, which heralded the increment of unwelcome digital issues such as online misconducts, inappropriate production of online content, plagiarism, cyberbullying, addiction, and sexting (Crimmins & Seigfried-Spellar, 2014; Livingstone & Haddon, 2012). In addition, wellness and psychological issues such as technostress, depression, and social withdrawal (Judi et al, 2013; Lee et al., 2014; Tsitsika et al., 2014).

Fostering technology with only digital access and digital literacy is proven less ample due to their lack of ability in using online technology meaningfully (Akçayır et al., 2016; ECDL Foundation, 2014). It is found that higher online skills and online engagement on social and leisure contents are significantly increase online misbehavior (Bozoglan et al., 2014; Park et al. 2014). It occurs when the internet is used to relieve and escape from the negative feelings, by seeking pleasure negatively, to perpetrate others or themselves. This may lead to bad academic achievement and well-being or worse, it could also lead to brain effect and suicide, especially for the cyber victims (Hawi & Samaha, 2016; Kühn & Gallinat, 2015; Lee et al., 2014; Lutz et al., 2014).

According to McNicol and Thorsteinsson (2017) and Hawkins (2002), individuals with high digital skills who engage in illegal activities are due to moral weaknesses, uncontrolled emotion, antisocial behavior, and a lack of empathy for others. Spirituality, on the other hand, has the ability to increase emotion control, prosocial and moral behavior, and the wholeness of adolescent wellbeing (Žukauskienė, 2014). Furthermore, it serves as a strong inner strength to one's willingness and grit to perform positive behavior in any circumstance

throughout one's lifetime (Hamzah et al., 2010; Ismail & Rahman, 2012; Waldo, 2014).

Despite its potential for overcoming digital issues, spirituality received less attention and was absent in the construction of the existing concept of digital citizenship. Hence, the pertinent digital wellness and psychological issues demand new way of intervention, by looking on the affective aspects, especially on spirituality, to optimizing the effective and meaningful use of technology among adolescents.

### *1.2 Digital Citizenship*

Digital citizenship concept was introduced to raise young people's awareness of online risks as intervention to reduce digital issues. The concept is gaining traction among academics and stakeholders across a wide range of disciplines, in cultivating positive and beneficial technology uses. There are several attempts in comprising digital citizenship (see Appendix A).

First, the Nine Elements of Digital citizenship introduced in the year 2004, where digital citizenship is defined as “norms of appropriate, and responsible behaviour with regard to technology use” that comprises the nine elements (see Appendix A) (Ribble, 2008). This definition covers ranges of digital issues associated with k12 students and empirically tested across cultures such as in the Turkey context (Kuş et al., 2017), Thailand (Phornprasert et al., 2020), and Malaysia (Nordin et al., 2016). However, the definition was argued by scholars, for its irrelevance to other disciplines, due to lack of etymology of citizenship element such as political activism and civic, and rather focuses on skills and competency (Choi, 2016; Jørring et al., 2018; Kane et al., 2017).

Second, the three condition model by Choi et al. (2017) emerged in educational technology, and their concept of digital citizenship imparting political activism. Digital citizenship is defined as “one’s abilities, thinking, action regarding internet use, which allows people to understand, navigate, engage in and transform self, community, society, and the world” (Choi et al., 2017). Their view of digital citizenship was agreed by several scholars, due political activism initiates the sense of community and determines the direction of a country, by voting and electing upcoming rulers or governments (Emejulu & McGregor, 2019). However, this definition is argued in the context of secondary school students in Malaysia. The role of education in Malaysia is to develop the potential of an individual with patriotic spirit, which differs in western countries that aim to foster political literacy for active democratic participation (Ahmad et al., 2012). In addition, political activism in education is restricted under Malaysia’s University and University College Act 1971. The definition argued for less focuses on the digital issues associated with school students. Furthermore, several studies use this definition, and revealed that respondents showed less interest in political engagement due to emotional disturbance and society pressure (Elcicek et al., 2018; Kara, 2018).

Third, the iKeepSafe model, an extensive privacy k12 curriculum that offers free access online (<https://ikeepsafe.org/privacy-curriculum-matrix/>) proposes digital citizenship by comprising elements of balance (maintaining a healthy balance of technology use), ethics (making ethical and considerate decisions), privacy (protecting personal information),

relationship (healthy and safe connection), reputation (building positive online presence) and online security (hardware and software protection). This concept of digital citizenship inspired other digital citizenship models, such as by Kim and Choi (2018), Common Sense Education (Common Sense Media, 2016), and Singapore cyber wellness secondary school curriculum (MOE Singapore, 2014). As the result, several new elements had been used in digital citizenship definition by several scholars, such as digital identity, online reputation or a digital footprint, and relationships (Martin et al., 2020; Phornprasert et al., 2020; Aldosari et al., 2020).

However, there is still a lack of attention paid to the intervention of digital issues from an affective standpoint, particularly conceptualizing digital citizenship with integration of spiritual from the perspective of wellness and resilience (Lewin et al., 2021; Lucey & Lin, 2020). Furthermore, the extensive literature with a diverse range of conceptualizations, contributed to the complexity of the digital citizenship concept to comprehend in context of secondary school students. Inability to understand digital citizenship will complicate the implementation of future interventions on digital issues especially in future research, as well as complicate to thoroughly integrate digital citizenship into education.

Thus, there is a need to address the inconsistency of the currently available digital citizenship concept and extent it for future implementation of digital citizenship for context of secondary education in Malaysia. Thus, this paper brought extensive discussion of digital citizenship from the perspectives of educational technology and psychology, in order to propose a new digital citizenship concept, by seeking to define digital citizenship with the integration of spirituality to be digitally resilient, thus achieving wellness of digital life.

## 2. Background

### 2.1 The Wave of Evolution

Digital citizenship in educational technology can be understood in an evolutionary approach. The definitions of digital citizenship evolve simultaneously with technology use in education. These definitions can be understood in four waves; the first wave of the cluster definitions is standard or guideline, the second is online community participation, third is skills and competency, and the fourth is balance and wellbeing, as in Figure 1.

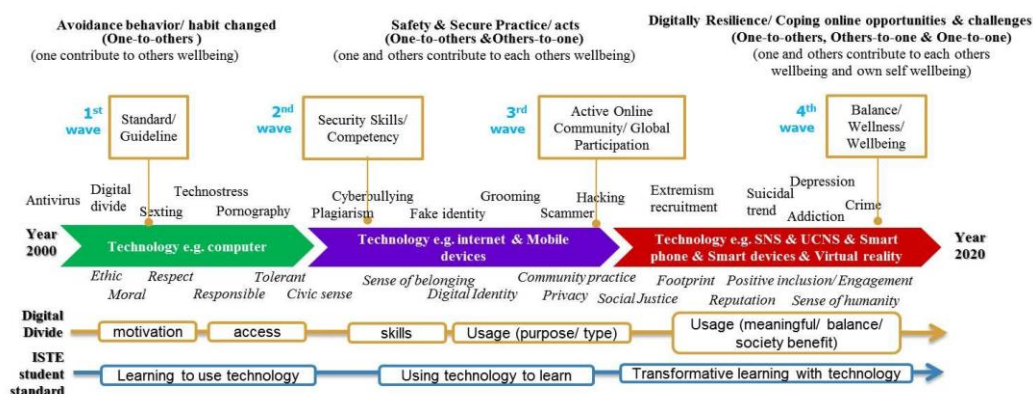


Figure 1. Evolution of the digital citizenship concept

In the year 2000, the computer was starting to widely used, and years later, the immersion of online technology had changed the early definition of digital citizenship. The idea of proposing the standard behavior was on the concern of the avoidance behavior from the potential harm of technology such as the installation of virus protection, and the creation of computer passwords. During that time, the concern is on how to get students to use the technology. Digital citizenship mainly defined as “norms of behavior of technology use” (Ribble, 2004).

Secondly, the cluster of digital citizenship definitions that related to skills and competency, when internet begins embedded with digital devices. Digital citizenship, according to some researchers, should be supplemented with other literacies, abilities, or fluency and not only the proper and ethical use of ICT (Richards, 2010; Simsek & Simsek, 2013). Aside from following the law, showing respect for others, and acting responsibly, one should also be media literate to effectively handle online hazards (O’Brien & Stavert, 2011). Others, on the other hand, claimed that critical literacy and thinking should be incorporated to critically analyse online contents (Kuş et al., 2017; Reynolds & Scott, 2016). According to Ohler (2015), combining digital citizenship with media literacy can help students develop critical thinking and character. Critical literacy is seen in the form of information literacy, the ability to critically analyse information for its accuracy, authenticity, source credibility, motive, as well as differentiate between opinions and facts (Common Sense Media, 2016; Kim & Choi, 2018). UNESCO (2016) define digital citizenship as “the ability to effectively find, access, use, and create information; engage with other users and content in an active, critical, sensitive, and ethical manner; and navigate the online and ICT environment safely and responsibly, while being aware of one's rights.”. Others defined digital citizenship as having the knowledge, displaying the attitude, and skills necessary to ensure ethical, safe, and responsible use of information tools and the internet by effectively spanning the physical and virtual world (Ünal, 2017).

Thirdly, the cluster definitions are rooted in online participation. As mobile devices with online connection, such as iPad and Facebook, became more common in education, scholars argued the earlier definition of digital citizenship should include online community participation, as people became more widely connected, resulting in the formation of online communities. Responsible, participatory, and justice-oriented digital citizenship should be included. Digital citizenship, according to Curran and Ribble (2017), is more than a set of rules about what can and cannot be done online; it is a thorough look at how people actively solve problems and participates in online platforms, communities, and networks. ISTE revised the students’ standards of digital citizenship as “students recognize the rights, responsibilities, and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical” (ISTE, 2018). Similar to Hui and Campbell (2018), digital citizenship is displaying and practicing good online behavior, in the sense of technology use in a safe, secure, responsible, and respectful manner. The term “digital citizenship” is then used to describe how to use technology ethically, safely, responsibly, and with respect for differences of others while being able to fully participate and contribute to the technology-rich-society (Pedersen et al., 2018; UNESCO, 2015).

As technology in education has evolved with the use of smart devices with online connections and user content network services, digital citizenship is then defined as combining skills and competency, to actively participate and contribute to society, as the creator of information and online content. The creation of online content will assist students to develop online identity and reputation (digital portfolio) as well as potentially becoming a social influencer, dubbed "insta-famous" or "Tiktoker". However, the worry is about how positive the message conveyed by these new creators. Hence, numerous experts incorporated online identity as well as the relationship with others, into the concept of digital citizenship. As a result, a digital citizen must possess a variety of talents, including communication skills, information skills (the ability to synthesize knowledge into a new form), and multimedia literacy in design, photo, and video editing. Others characterized digital citizens as those who are kind and tolerant to others and participate in civic activities (Jones & Mitchell, 2016; Tapingkae et al., 2020). Thus, this cluster of definitions can be summarized as the standard of one's practice or acts safely and securely, according to the accepted norms, rules, and laws of digital citizenship. The concern is to create a safer online environment for all and cultivate positive online culture as an online lifestyle.

Fourthly, there is a new wave of cluster definitions that focuses on balance and well-being. The incorporation of smart technology into all aspects of daily life, with artificial intelligence embedded in the majority of devices, had raised concerns, especially as technology addiction issues have remained relevant for decades. This issue began to gain attention, as people began to consider how media affects their lives and relationships in both positive and negative ways. Furthermore, people's habits of living and working have changed, necessitating their constant engagement with technology. For example, students who learn entirely online, make extensive use of technology to complete assignments or sit for exams, and live in homes with constant online access at all hours of the day and night. Thus, the affective component is begun introduced in digital citizenship definition to overcome the issue of technology addiction.

Earlier, self-efficacy has been studied with digital citizenship behavior, through internet self-efficacy (Choi et al., 2018; Kim & Choi, 2018). Internet self-efficacy in digital citizenship is defined as a person's belief in their ability to use technology to participate in a variety of online activities (Choi et al., 2017). A good digital citizen is viewed as confident in their technological abilities and has a tendency to use them in a way that respects oneself and others. However, the empirical findings on the relationship between self-efficacy and the practice of digital citizenship are inconsistent. Choi et al. (2017) and Kim & Choi (2018) found it as a predictor to digital citizenship where positive correlation found with internet self-efficacy construct, so were Xu et al. (2018) who focus on social media self-efficacy. However, Al-Zahrani (2015) found no relation, especially, to the practice of protecting oneself or others. Hence, self-efficacy argued its relevance for future use in digital citizenship conceptualization.

Then, self-regulation and empathy were integrated. Self-regulation was found as a strong determinant of digital citizenship, with 46% variance explained for digital citizenship (Nordin, 2015). Self-regulation is defined as law-abiding users of communication technology who are

accountable for their online behaviors and deeds, aware of the legal ramifications of breaking such regulations and laws (Nordin, 2015). Self-regulation (self-control) has been proven positively associated with ethical and self-protecting behavior, significantly associated with problematic online behaviors especially predictors of piracy behavior (Kim & Kim, 2015; Lowry et al., 2017; Nordin, 2015).

Empathy is included in the Digital Citizenship Education of the Council of Europe, as well as the Singapore Secondary School Syllabus of Cyberwellnes (Ministry of Education Singapore, 2014). Empathy is proven to be a significant predictor of cyberbullying perpetration, positive bystander of the cyberbully, and associated with prosocial behavior and execution of positive intentions (DeSmet et al., 2016; Richardson & Milovidov, 2019). Furthermore, empathy is positively related to social support, and the lack of nonverbal cues in the virtual world contributes to lower levels of virtual empathy. Carrier et al. (2015) found level of empathy while being online is rather caused by leisure activities (i.e. video gaming), and not the hours spent online. However, it is argued that empathy alone does not able to protect citizens from online harms caused by others which empathy could help as a precaution, but may less effective in the prevention of being victimized or recover from any trauma of online events.

The ability to positively and rapidly recover from stress or hardship is called resilience and it is closely related to spirituality. Recently, spirituality has been explored in constructing the definition of digital citizenship. Spirituality can be considered as a new holistic approach to creating a balanced sense of spirit, and technology, on the other hand, represents a formidable challenge (Lucey & Lin, 2020). They defined, digital citizen should able to contribute to spiritual and mindful communities through ethical and moral actions during an engagement, such as preventing and assisting traumatized events that occurred as a result of inappropriate technology use. Trayek (2017) explained, in terms of spirituality and religion, digital citizens are expected to have religious beliefs to shape their motivation to voluntarily conduct positive online behavior.

In the psychology field, spirituality has proven to be a key component of good health and wellness, particularly in teenagers' positive development (Ghazali et al., 2017; Mirghafourvand et al., 2016; Spurr et al., 2012). It reduces mental health problems, improves academic achievement, social and emotional well-being, and promotes internal strength among Malaysian students (Mansor & Khalid, 2012; Yaacob et al., 2015; Yahaya et al. 2012). In addition, spirituality also prevents online psychological problems (Sharma & Arif, 2015). Spirituality does not only provide the internal strength but, it also provides the meaning of life and the inner resources to function optimally. Moreover, spirituality is important in aiding adolescents to push through any adversity in life (Ryff & Burton, 1996). Having internalization of spiritual in individuals, enable self-management, to manage their emotions and anger better, to respect and hold empathy to other, to be responsible and to prefer healthy and positive relationship, to behave appropriately, and resilience on challenging situations (Arguedas et al., 2016; Hosseini et al., 2010).

Hence, the potential of spirituality in building digital resilience within the digital citizenship framework is interesting to be explored, since its importance in digital citizenship is

supported in the above extensive reviews. It is found that the lacking of affective aspect such as spirituality in defining digital citizenship, might affect the digital issues associated with adolescents' wellness and wellbeing pertinent in coming years. Thus, it serves the necessity to be embedded into digital citizenship definition in the secondary school context.

### 2.3 Role of Spirituality in Internalization of Resilience to Strengthen the Practice of Digital Citizenship

Spirituality could be comprehended from the perspective of wellness and resilience. The Theory of Wellness explains, wellness is achieved when the state of balance of all aspects of wellbeing is achieved, where spiritual wellbeing is a significant aspect of holistic wellness (Figure 2) (Fisher, 2011; Lippman et al., 2014; Myers et al., 2004). The majority of experts found the relation of spirituality as an important indicator of psychological well-being (Imam et al, 2009; Unterrainer et al., 2010).



Figure 2. Components of holistic wellness. (Source: Ahmad, 2022)

Spirituality has been conceptualized in terms of connectedness within wellness discipline. It is the ability to access inner resources and strength by having a satisfying relationship with God or the higher power (van Dierendonck, 2004). It is considered that the human soul plays a significant part in driving individuals to seek meaning in life, a sense of directness, the formation of identities, and the morals of a person (Hamzah et al., 2010). Spiritual wellness could be achieved via frequent spiritual practices such as meditation or prayer, a readiness to help and love others, hopefulness, joy, harmony, and peace, a sense of identity, a sense of community and social justice, wholeness, and satisfaction, respect and a positive attitude (Michaelson et al., 2016; Roscoe, 2009).

The way humans could face adversity and challenges had been explored in the Resilience Theory. It explains that an individual's internal strength is one of the protective factors in dealing with difficulties thus led to resiliency (Zimmerman, 2013). Resilience is briefly described as the ability to speedily or successfully or positively recover from difficult events by harnessing resources as strength to sustain wellbeing (Rutter, 1985)(Figure 3).



Figure 3. Mechanism of resilience. (Source: Ahmad, 2022)



One of the ways to adapt to any potential risks is to experience the risk at a low level of exposure. The risk could be constantly minimized by accessing resources that could be in the form of promotive or protective, to reduce the negative outcomes that might be caused by the risk. Thus, positive outcomes could be achieved. Therefore, a way to develop students' digital resilience and survival in similar future events is by exposing them to the online risk while providing them with sufficient resources to shield them from the risk's potential negative outcomes or effects (Greene et al., 2004).

For example, protective factors such as having digital security, digital literacy, and digital health and wellness elements may minimize student's chance of getting addicted, or cyber victimized or harmed by the online risks and challenges. The resources such as social support, personal competencies (emotional skills, social skills, and intelligence), identity, and spirituality could internalize the resilience of adolescents (Schultze-Lutter, Schimmelmann, & Schmidt, 2016). Thus, resilience can be described as positive coping to be well-adapted under adversity.

Spirituality facilitates resilience in several ways, such as the source of social support, guiding conduct and moral judgment, personal development, and meaningful attachment (Pandya, 2015). Spirituality is proven related to greater resilience and source of inner strength of adolescent, such as in orient toward positive future outcomes, life meaning, optimism, and led to effective active coping strategies (Briggs et al., 2011; DiPierro et al., 2018; Manning et al., 2019; Smith et al., 2013).

To achieve spiritual wellness and be resilient, scholars indicated spiritual coping. Spiritual coping simply refers to an individual's actions in expressing and keeping a good attitude in the face of hardship as a reflection of their relationship with the Higher Power, sense of connectedness with others, and sense of life purpose (Frydenberg, 2018; Haase, 2004; Kim & Esquivel, 2011). Spiritual coping may be in the form of religious orientation or non-religious orientation. Religion-oriented spiritual coping, proven to be effective on resilient individuals in illness and surgery who turn to God for support, hope, strength, and comfort (Bahari et al., 2016; Gall & Guirguis-Younger, 2013). Spiritual coping empower inner strength by finding meaning during illness, thus safeguarding their wellness with hope and motivation to recover. Meditation, fasting, prayer, remembering God, reading scripture, attending religious services or activities, and listening to worship songs or religious conversations are examples of spiritual coping practices for believers, whilst non-believers engage with practices such as listening to soothing music, yoga, recreation activities, and deep breathing (Baldacchino & Draper, 2001).

This paper proposed the idea of combining perspectives of wellness and resilience in the integration of spirituality in digital citizenship, which has limitedly emphasized in digital citizenship. Thus, this new digital citizenship concept is developed by looking at an opportunity offered by technology to improve adolescents' wellness, hence, enhancing their spiritual level. An individual could be safeguarded not only from being a cyber-victim but also from becoming a cyber-offender.

### 3. Proposing New Definition

In Malaysia, the spiritual element is crucial in producing new citizens. The Nation Pillars (Rukun Negara) were established in 1969 as the foundation for rebuilding a new nation following the historical catastrophe. Belief in God, devotion to king and country, supporting the constitution, the Rule of Law, and courtesy and morality are the five pillars that served as living guidelines for its citizens. These pillars are channeled into education, to form citizenship. Malaysia Education Philosophy 1996, stated the mission and effort to develop citizens' potential holistically, not only intellectually, spiritually, emotionally, and physically balanced and harmonious, but also having firm belief in and devotion to God. Furthermore, the educational strategy attempted to address human capital needs while also producing a society with resilience to face future challenges. The Malaysia Education Blueprint 2013-2025 emphasizes the objective of developing each student's competitiveness through six major criteria: knowledge, thinking skills, ethics and spirituality, leadership abilities, bilingual skills, and national identity. Meanwhile, the Computer Science curriculum of secondary school aims to produce digital citizens with nine profiles: 1) resilient to any challenges of cyberspaces or emotionally; 2) possess communication skills; 3) better thinker; 4) collaboration skills; 5) curiosity; 6) principled 7) informational; 8) loving and caring; and 9) patriotic spirit (Ministry of Education Malaysia, 2015).

Thus, it is acknowledged that values, practices, good manners, and noble qualities, as well as holistic wellness, are the essential characteristics of education in Malaysia especially in digital education (Hassan & Yew, 2013). However, holistic wellbeing in the form of devotion to God and spiritual elements that enable individuals' resilience are missing in the available digital citizenship paradigm. Thus, aligning Malaysian educational outcomes in digital citizenship will increase the possibility to improve students' achievements in positive online behaviors while also supporting the succession of educational vision and mission (Figure 4). Hence, the digital citizenship definitions proposed as well as its sub constructs are tabulated in Appendix B.

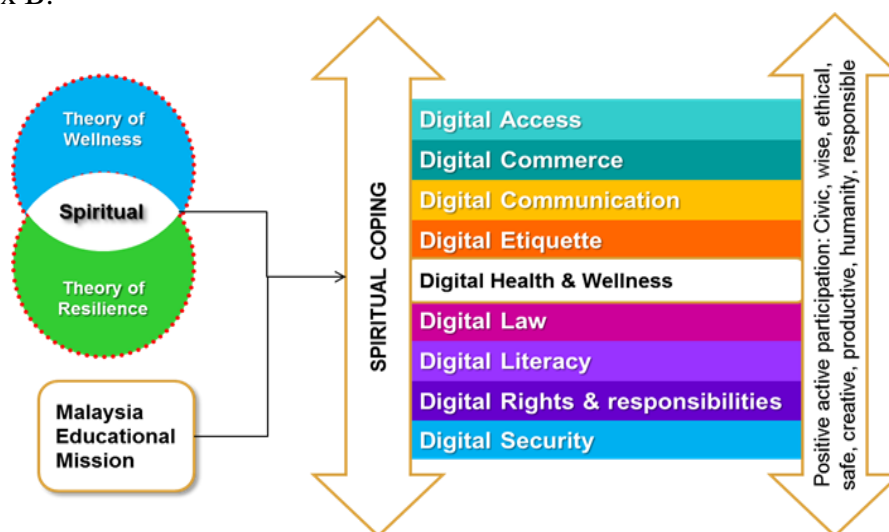


Figure 4. Integration of Malaysia Educational Outcomes and spirituality into digital citizenship concept

In this paper, digital citizenship viewed as individual practice of being positive and meaningful use of technology, which a digital citizen is one who able to contribute to their society and their own self, as an active online member. They are expected not only be the receiver of online information or any digital contents, however, be the contributors or creators of online contents or information. It may in any forms of digital materials, either text-based or image-based such as post, status, comments, messages, pictures, blog or video.

Hence, meaningful use of technology is not only required them to exercise online conducts that are ethical, responsible, respect, safe, and secure in online environment, however, include prudent, polite, wise, tolerant, care, civic, creative, legal, productive, patriotic, spiritual and balance. Meaningful use of technology will maximize the beneficial use of technology and resilience to any online risks, that may come from other online users (e.g. hacked) or own self-harm (e.g. wellness decrement or addiction), and from the risk of harming others (e.g. cyber-perpetrator).

#### **4. Conclusion**

From the literature, it is seen that in educational technology perspective, the weightage concern of digital citizenship is on empowering the ability of an individual to use technology safely, wisely, responsibly, critically, productively, civically, and resiliently by actively participating in an online society. Even though there is a slight concern about political engagement, several scholars argued its necessity in the digital citizenship concept. However, it should not be confused in defining digital citizenship in education and educational technology. This is because, in education, digital citizenship is defined generally with a mixture of perspectives (e.g. political science and citizenship education) while in education technology, it is specifically concerned as aforementioned, which only then, mutual consensus could be generated in the future.

Digital citizenship can be understood as online socializing capacity by being cautiously aware of one's own actions to manifest positivity, by being considerate to others, thus less hurting or harming others. This capacity needs to be learned and taught so the expected norm of behavior could be formed. This paper argued that the digital citizenship concept is now moving into the fourth wave. The first wave was when technology started to be implemented in education, where the concern of the definition focuses on the rules of socializing online. As the technology evolved to the internet, the focus is on how to get people to socialize or participate online safely and securely, especially to students of k12, thus this paper named it as the second wave. The third wave appeared when social media emerged as a way of life and the concern of the digital citizenship concept shifted to equip young citizens with not only skills to socialize safely, ethically, and morally, but also civically. This time, the definition focuses on the skills and competency needed by an individual or a citizen to empower themselves to bring good to society.

The fourth wave of the concept of digital citizenship definition questions how far one could contribute to the online society and to what extent it is considered as far. Why there is still cyberbullying and people with intelligent computer science skills opt to harm others, for the sake of money (e.g. hacker or scammer) without feeling guilty and cause others to live with

the consequences. Would it just be enough to be civic and empathetic to others? What is the lacking element that actually could guide them to the right path to be digitally resilient? How wellness and balanced well-being could be achieved? Hence, after extensive reviews, this paper found that spirituality is the missing piece. Spirituality is the one element that could provide cyber wellness and balance well-being on an individual who lives with technology, thus, spirituality is added in this proposed definition. Therefore, digital citizenship is defined as the practice of online participation by using technology spiritually to create a virtual world that is more pleasant and peaceful by empowering the spirituality of an individual and the online society.

It can be concluded that no matter how digital citizenship is defined in an educational technology discipline, either standard of norms to practice, or positive online participation, or competence for demonstrable skills and characteristics to be digital resilient, the main concern of digital citizenship is with educating, preparing, and cultivating better future drivers of digital society, possessing better online culture via teaching and learning with technology. Thus, to always revisit and redefine the definition is considered as the norm in any discipline that is related to technology, and of course, leads to the advancement of the future.

The proposed definition of digital citizenship is at an initial stage, and not yet empirically tested, which means it may not serve its purpose to complement and extend the currently available digital citizenship definition. Moreover, the proposed definition may not be relevant in some countries, and to different age groups, as it emphasizes the spiritual aspect which may be assumed by many, as a religious aspect. Some scholars may argue this concept is irrelevant in countries that view religion as a human right. However, this paper argued, how should one reason their action to be ethical even in a life-threatening situation? To which extent should we indicate our action is ethical than other groups of people? Thus bringing back the argument to religion seems relevant, in determining what actions are considered good or bad as religion is guidance and a way of life and is considered as an identity of an individual. It is noted that some extremism used religion to warrant their harmful action, however, as promoted in the earlier notion of citizenship and ethic, the rightful actions are judged based on their outcomes to social good and utilitarianism by imparting democratic values, not on certain group of people (oligarchy) or individuals (autocracy) or none (anarchism).

Thus, this paper follows the knowledge path that agrees with the notion of spirituality does significantly relate to religion, however, it is not solely a religion, owing to the fact that spiritual enhancement could be practiced by both the believers and non-believers. Spirituality deals with the inner soul of human beings, by not getting drowned in worldly pleasures. Religions, on the other hand, act as tools to strengthen the soul power, to become a super digital citizen. In the technology context, spiritual enhancement could be achieved by extending spiritual coping into digital ways. With this proposed definition, it is hoped for a better future and society, thus the virtual world could become more pleasant and safe to live in.

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**Appendix A**

The elements of digital citizenship in available theory/ model.

Theory/ Model	Digital access	Digital Commerce	Digital Communication	Digital Etiquette/ Ethic	Digital Law	Digital Literacy/ information literacy/ technical skills	Digital Rights & Responsibilities	Digital Security	Digital Health & wellness/ Balance use	Internet Political Activism	Local/ Global Awareness	Critical perspective	Networking Agency/ positive presence	Privacy of Personal Information	Relationship (healthy & safe)	Reputation/ digital I footprint	Self- identity/ self-image	Reasonable activity online (social/culture engagement)	Fluency of digital tools	Cyberbully/ digital drama	Online respect	Online civic engagement	Creative credit & copyright
The Nine Elements of Digital Citizenship (Ribble, 2008)	X	X	X	X	X	X	X	X	X														
Three Condition Model (Choi et al., 2017)						X				X	X	X	X										
Six Pillar model (iKeepSafe)				X				X	X					X	X	X							
Common Sense Education			X			X		X						X	X	X	X			X			X
S.A.F.E. model (Kim & Choi, 2018)				X													X	X	X				
Measurement (Jones & Mitchell, 2016)																					X	X	
Cyberwellness (MOE Singapore, 2014)									X				X		X		X						
<b>Total</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>3</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>

**Appendix B**

Details of conceptualization of the proposed digital citizenship concept for Malaysia secondary school students.

<b>Malaysia Educational Outcomes:</b>	1) A citizen who potentially contributes to the family, nation, and social harmony by: - devotion to God and firm belief - high-level personal well-being (with balanced state of mind (intellectual), spiritual, emotional, physical) - possess high moral standards - responsible personally and socially
<b>Digital citizenship:</b>	Refer as practices of being digitally resilient in online active participation, in recognizing opportunities and coping challenges to enable optimal and meaningful use of technology, with the aim to empower the wellness of individuals and society.

Use Technology Meaningfully	Construct	Definition & Indicator	Embedded spiritual
Actively, and civically	<b>Digital Access</b>	Refer as practice of online participation in awareness of the opportunity of growing new knowledge from each other's and opportunity to benefit oneself and others.	Sense of community, and civic relations
		- Civic Participation	
		- Online Community of Practice	
		- Technological Access	
Wisely, and safely	<b>Digital Commerce</b>	Refer as practice of using digital technology wisely, safely and trustworthy on financial related matters to achieve financial wellness of individual and other too	Sense of community, gratitude, and presence thought
		- Wise Consumer	
		- Trustworthy Entrepreneurship	
Prudently, effectively, and politely	<b>Digital Communication</b>	Refer as practice of using effective online communication medium to positively communicate online, by expressing one's thoughts to be well understood by others, as well as understand well of others, without hurting other's feeling.	Peace/ harmony relations, love/care for others, and respect others
		- Intercultural Communication	
		- Appropriate format	
		- Empathic response	

		- Interpret positively	
		- Medium Selection	
Tolerantly, humanly, and ethically	<b>Digital Etiquette</b>	Refer as practice of using digital technology with sensitivity or consideration of others.	God remembrance, forgiving, good to other, sense of humanity, and embrace diversity of God creation
		- Basic politeness	
		- Content courtesy	
		- Decency of usage	
		- Group Politeness	
Balance and spiritually	<b>Digital Health &amp; Wellness</b>	Refer as practice of using digital technology balance to achieve optimum state of wellness with empowerment of spirituality to enhance holistic wellness.	God remembrance, mindfulness, and gratitude
		- Balance Use	
		- Sense of God	
		- Wellness empowerment	
Legally	<b>Digital Law</b>	Refer as practice of using digital technology legally by aware the bounded national digital law, and the consequences of law violations of the illegal usage.	Sense of community, and obligation
		- Rules of Law	
		- Legal Eligible Rights	
Creatively, critically, and productively	<b>Digital Literacy</b>	Refer as practice of using digital technology competently to sufficiently gather information, critically evaluate information, and creatively process the information to produce new or more meaningfully digital information.	Sense of community, pursuit goal and, God remembrance
		- Information Literate	
		- Content Production	
		- Technical Proficiency	
Responsibly, respectfully, and patriotically	<b>Digital Rights &amp; Responsibility</b>	Refer as practice of using digital technology safe, fairly and responsibly to protect, maintain and expressing own rights (personal responsibility) and other rights (social responsibility) in online environment.	Sense of community, respect/ good to other, sense of identity, and sense of humanity
		- Acknowledge others	
		- Humanitarian	
		- Online Reputation	
		- Sense of Identity	
Securely, and privately	<b>Digital Security</b>	Refer as practice of using digital technology securely and safely in protecting personal	Sense of community and

		information, identity, data assets and online connected devices of own and others	God remembrance
		- Adjust Setting	
		- Prudent	
		- Device Care	

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