EXAMINING FACTORS INFLUENCING STUDENTS' DIGITAL CITIZENSHIP LEVEL AND RELATIONSHIP OF ONLINE MEDIATION AND DIGITAL CITIZENSHIP

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SULTAN IDRIS EDUCATION UNIVERSITY

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ABSTRACT

Present lower secondary students are the digital citizens known as Generation Z. The increasing rate of digital device ownership among students has led to an increase in unethical use of technology. As students are active Internet users, digital citizenship and online mediation are vital in developing healthy digital practices. Hence, this study was conducted to examine lower secondary students' digital citizenship levels using the REP (Respect, Educate and Protect) framework as well as identify the effects of digital device usage experience, which refers to years of digital device usage and the average of daily Internet usage on the students' digital citizenship levels in terms of REP. In addition, the relationship between online mediation and digital citizenship level was determined in this study. A survey was conducted using a quantitative approach. An adapted questionnaire was distributed to 374 students of Form 1 and 2 students who were selected from the Sepang district using the stratified random sampling method. The data were analysed using SPSS software by conducting descriptive statistics, MANOVA and Pearson's correlation. Findings revealed a high average level (mean = 3.79) of digital citizenship among the students. However, the students scored the lowest mean in digital access (mean = 3.40, *SD* = .59) and digital communication (mean = 3.44, *SD* = .52). Meanwhile, the students' years of digital device usage ($p = .137$) and the average of daily Internet usage ($p = .327$) were found to have no significant effect on the digital citizenship level. The correlation analysis found a moderate positive relationship ($r = .476$) between online mediation and the students' digital citizenship level. Conclusively, digital citizenship and online mediation could help students to be responsible digital citizens. The implication of this study indicates the need to disseminate digital citizenship through education to nurture students' good online behaviour.

PENELITIAN FAKTOR-FAKTOR MEMPENGARUHI TAHAP KEWARGANEGARAAN DIGITAL PELAJAR DAN HUBUNGAN PENGANTARAAN ATAS TALIAN DAN KEWARGANEGARAAN DIGITAL

ABSTRAK

Pada masa kini, pelajar menengah rendah adalah warganegara digital dikenali Generasi Z. Peningkatan penggunaan peranti digital dalam kalangan pelajar mendorong kepada peningkatan penggunaan teknologi yang tidak beretika. Oleh kerana pelajar adalah pengguna Internet yang aktif, kewarganegaraan digital dan pengantaraan atas talian amat penting dalam membentuk amalan digital yang sihat. Oleh itu, kajian ini dijalankan bagi mengkaji tahap kewarganegaraan digital pelajar menengah rendah dengan menggunakan kerangka REP (Respect, Educate and Protect) serta mengenalpasti pengaruh pengalaman penggunaan peranti digital yang merujuk kepada tahun penggunaan peranti digital dan purata harian penggunaan peranti digital ke atas tahap kewarganegaraan digital pelajar berdasarkan REP. Kajian ini turut menentukan hubungan antara pengantaraan atas talian dan tahap kewarganegaraan digital pelajar. Satu tinjauan dijalankan menggunakan pendekatan kuantitatif. Soal selidik yang diubahsuai diedarkan kepada 374 orang pelajar Tingkatan 1 dan 2 dari daerah Sepang yang dipilih secara persampelan rawak berstrata. Data dianalisis menggunakan perisian SPSS dengan menjalankan statistik deskriptif, MANOVA dan korelasi Pearson. Hasil kajian mendedahkan tahap kewarganegaraan digital sederhana tinggi (min = 3.79) antara pelajar. Namun, pelajar memperoleh min terendah dalam akses digital (min = 3.40, *SD* = .59) dan komunikasi digital (min = 3.44, *SD* = .52). Pengalaman penggunaan peranti digital pelajar iaitu tahun penggunaan peranti digital (p = .137) dan purata harian penggunaan peranti digital (p = .327) juga didapati tidak memberi kesan signifikan terhadap tahap kewarganegaraan digital pelajar. Analisis korelasi menunjukkan hubungan sederhana positif (*r* = .476) antara pengantaraan atas talian dan tahap kewarganegaraan digital pelajar. Kesimpulannya, kewarganegaraan digital dan pengantaraan atas talian mampu membentuk pelajar menjadi pengguna yang bertanggungjawab. Implikasi kajian ini menunjukkan keperluan dalam menyebarkan kewarganegaraan digital melalui pendidikan untuk melahirkan pelajar yang mempunyai sikap atas talian yang baik.

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LIST OF ABBREVIATIONS

BYOD	Bring Your Own Device
CMCO	Conditional Movement Control Order
DCS	Digital Competency Standard
DCS	Digital Citizenship Scale
DKAP	Digital Kids Asia-Pacific
EU	European Union
FoMO	Fear of Missing Out
ICT	Information and Communication Technology
ISTE	International Society and Technology in Education
ITU	International Telecommunication Union
MCMC	Malaysian Communications and Multimedia Commission
MCO	Movement Control Order
MDEC	Malaysia Digital Economy Corporation
MOE	Minister of Education
NDCI	National Digital Citizenship Initiative
NICTSeD	National ICT Security Discourse
OECD	Organisation for Economic Co-operation and Development
PISA	Programme for International Student Assessment
REP	Respect, Educate and Protect
RMCO	Recovery Movement Control Order
S3	Safe, Savvy and Social
SID	Safer Internet Day

SM	Sekolah Menengah
SMK	Sekolah Menengah Kebangsaan
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
VLE	Virtual Learning Environment

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CHAPTER 1

INTRODUCTION

1.1 Introduction

The introduction of the Internet in 1995 and broadband in 2007 in Malaysia has allowed Malaysians to rely on the Internet for daily activities (Saodah & Shafizan, 2017). As the Internet has become mobile, Internet usage patterns have changed and allowed more users to be digital citizens (Mossberger, Tolbert, & Anderson, 2017). These technologies have given various unprecedented opportunities for students to explore the world (Vincent, 2015).

A survey conducted in 2018 by the Malaysian Communications and Multimedia Commission (MCMC) found that youth are the highest Internet users in Malaysia, with 38% Internet users (CyberSecurity Malaysia, 2019i). Besides, the United Nations Children's Fund (UNICEF) reported that youth are the Internet's primary users worldwide (UNICEF, 2017). UNICEF also stated that children below 15 years old were probably used the Internet as users above 25 years old (UNICEF, 2017). A study

conducted on 450 parents in the Czech Republic reported that almost 98% of children aged 11 to 17 are Internet users (Kaspersky LAB & Smahel, 2016). The EU Kids Online survey of children aged nine to sixteen in 19 European countries also found that children access the Internet daily using smartphones (Smahel et al., 2020). The survey also found that the number of time children spending online keeps increasing each year which may cause by children's attachment with the smartphone.

Adolescents' digital device usage and time spent on the Internet keep growing as digital device ownership among adolescents increased from 2011 to 2017 (Moon, 2018). The Global Kids Online Project had surveyed to the Internet–using children aged nine to seventeen found that most of them may use up to three devices to access the Internet (UNICEF Office of Research – Innocenti, 2019). The survey also found that most of them prefer to use the mobile phone to connect to the Internet as it has multiple functions. Besides, Smahel et al. (2020) also reported in a survey of children aged nine to sixteen in 19 European countries whose preferred device is smartphones. A smartphone becomes their preferred device because of the compact size and more affordable than desktop or laptops (Zimmerle & Wall, 2019).

Social media is one of the strongest influences on students' well-being (Hill, 2020; Huang et al., 2014). Huang et al. (2014) reported that 95% of youth aged 12 to 17 years old in the United States access the Internet every day, and 80% of them use visit social network platforms. In 2018, MCMC found that 86% of youth use the Internet for visiting social media platforms (CyberSecurity Malaysia, 2019i). Global Kids Online Project survey found that many children aged nine to seventeen years old are active social network users (UNICEF Office of Research – Innocenti, 2019). UNICEF Malaysia reported that approximately 92% of Internet users in Malaysia visited social network platforms (Pawelczyk, Kuldip Kaur, & Indra, 2014). UNICEF Malaysia also

reported that half of the country's Facebook users are young users aged 13 to 24 years old (Pawelczyk et al., 2014). Besides, Saodah and Shafizan (2017) stated that Malaysian Facebook users have an average of 233 online friends, 80% higher than the worldwide average. Many young users have multiple social media accounts (Zahri, Ramona Susanty, & Mustaffa, 2017). These accounts' primary intention is online engagement in a digital society (Saodah & Shafizan, 2017; Zahri et al., 2017). Furthermore, youth also uses social media as a platform to communicate with friends (Huang et al., 2014).

Global Kids Online Project survey found that children and youth practice “ladder of online participation” (UNICEF Office of Research – Innocenti, 2019, p.24). EU Kids Online also acknowledged that children's breadth of Internet use began developing as their age increases, showing a “ladder of opportunities” (Smahel et al., 2020, p. 34). Most of them started using the Internet for fundamental purposes such as schoolwork, watching online videos and playing online games (UNICEF Office of Research – Innocenti, 2019). Hence, digital citizenship can guide them in actively resolving problems and participating in online communities (Curran & Ribble, 2017).

1.2 Research background

Digital competency is one of the 21st-century skills (Ilomäki, Paavola, Lakkala, & Kantosalo, 2016). Ilomäki et al. (2016) had aligned digital competence with competencies in a framework of the OECD's PISA studies. Furthermore, Ilomäki et al. (2016) concluded digital competency as the ability to use information communication and technology (ICT) to work, access information and communicate, and be attentive in using the technology effectively. However, parents, educators and policymakers

provide students with practical ICT skills but neglect to prepare students with adequate knowledge and skills to encounter the pitfalls in the digital environment (Nansen, Chakraborty, Gibbs, MacDougall, & Vetere, 2012).

In 2016, the UNESCO Bangkok Office for Regional Asia and Pacific Regional Bureau for Education reviewed the “Building Digital Citizenship in Asia-Pacific through Safe, Effective and Responsible Use Of Information and Communication Technology (ICT)” policy (UNESCO Bangkok Office, 2016). The policy review is part of the “Fostering Digital Citizenship in Asia-Pacific through Safe, Effective and Responsible Use of use ICT” project. UNESCO Bangkok Office (2016) reported that the Member States acknowledged that it is essential to equip the children with adequate ICT skills. However, the Member States gave less attention to promoting advanced media and information literacy and introducing comprehensive cyber safety policies that could develop digital citizenship values (UNESCO Bangkok Office, 2016).

Afterwards, in 2018, UNESCO, supported by the Republic of Korea Funds-In-Trust Government, began working on Digital Kids Asia-Pacific (DKAP) project (Shin, Hwang, Park, Teng, & Dang, 2019). DKAP project aims to foster children's digital citizenship and promote the secure, responsible and efficient use of ICT. UNESCO accentuates digital citizenship in line with UNESCO’s Education 2030 agenda that identifies ICT as a vital tool that could provide opportunities for lifelong learning. UNESCO agreed that digital citizenship is vital as “digital citizenship is a socio-emotional capability to understand, respect and act upon the notion that the world is connected and one's behaviour leads intended/unintended repercussions for others” (Shin et al., 2019, p. 7).

CyberSecurity Malaysia also conducted Cyber Security Awareness for Everyone (CyberSAFE) to promote the public's cybersecurity awareness, social issues, and online risk (UNESCO Bangkok Office, 2016). Minister of Education (MOE) has cooperated with Digi, MCMC, and CyberSecurity Malaysia to promote CyberSAFE in schools since 2011 (Digi Telecommunications, 2015). CyberSAFE's primary focus is to instil cybersecurity awareness and knowledge and diminish online risks among the public (CyberSecurity Malaysia, 2019c). To continue this initiative to school students, CyberSecurity Malaysia has organised the CyberSAFE in Schools programme with collaboration from Digi, a telecommunication provider, Childline Malaysia, MCMC, and MOE (Digi Telecommunications, 2018b).

CyberSAFE in Schools uses various approaches such as CyberSAFE ambassadors, YouTube videos, and games to educate students on cyber safety and other child wellbeing issues (UNESCO Bangkok Office, 2016). Students can also access the programme websites for online games, videos, and reading materials regarding cyber safety issues. CyberSAFE website also provides materials such as videos and newsletters on cybersecurity for children, youth, parents, organisations, and community as references (CyberSecurity Malaysia, 2019a; Ramona Susanty, Zahri, Mustaffa, & Norrizan, 2019). However, the website receives low visitors (Ramona Susanty et al., 2019).

Safer Internet Day (SID) is an annual global campaign to promote a more secure Internet, nurturing and raise awareness on cybersecurity, significantly younger digital users (CyberSecurity Malaysia, 2019g). The celebration of SID in Malaysia started in 2010 organised under CyberSecurity Malaysia. For 2019, the theme for SID Malaysia is MyDigital H2O: Youth Cyber Wellness and Respect, Educate and Protect is the framework chosen for the campaign (CyberSecurity Malaysia, 2019g). SID

celebration in Malaysia supported by the Ministry of Communications and Multimedia Malaysia. MyDigital H2O or Digital Health to Others represents the campaign's aim to develop positive youth wellbeing and online behaviour in a broader digital community (CyberSecurity Malaysia, 2019e). Youth Cyber Wellness is chosen as the theme to guide youth to be responsible digital citizen (CyberSecurity Malaysia, 2019i). SID 2019 also highlights digital etiquette and digital health and wellness, which are the digital citizenship elements (CyberSecurity Malaysia, 2019d). SID displays the government's effort to promote better digital citizenship values among young netizens abreast with the worldwide shift (CyberSecurity Malaysia, 2019d).

MOE and Malaysia Digital Economy Corporation (MDEC) have cooperated to develop a Digital Competency Standard (DCS) (MDEC, 2019; Shamila, Shuhaida, Sofia Akmal, & Azma Asnawishah, 2016). DCS is an instrument to assess students' ICT knowledge and competency and recognise divides and provide solutions in their digital skillset (Shamila et al., 2016). DCS uses a gamification approach which requires students to answer using Tapir Hero as the chosen avatar. DCS consists of three domains; technology, digital citizenship, and cognitive. The digital citizenship domain in DCS is based on using ICT and information from the Internet ethically, efficiently, and safely (MDEC, 2019; Shamila et al., 2016).

CyberSecurity Malaysia planned to develop a National Digital Citizenship Initiative (NDCI) (Ramona Susanty et al., 2019). The initiative planned to practice education to disseminate digital citizenship knowledge to digital citizens, especially students, by conducting partnership with education key stakeholders. Besides, this initiative would help to support the current CyberSAFE programme. Developed countries such as Australia and New Zealand have put their efforts to embed digital citizenship in the curriculum (Ramona Susanty et al., 2019). In the United States,

Texas, Washington, and California also have proposed digital citizenship formal education to cultivate students to use technology appropriately (Gleason & von Gillern, 2018). Ramona Susanty et al. (2019) proposed that digital citizenship could be embedded in formal education or co-curricular activities to prepare students to become competent technology users. It is a crucial step since there is a paucity in a nationwide programme related to digital citizenship (Ramona Susanty et al., 2019).

There is a scarcity of digital citizenship-associated programmes in schools other than CyberSAFE in Schools and National ICT Security Discourse (NICTSeD) (Ramona Susanty et al., 2019). For instance, CyberSAFE in Schools programme focuses on cybersecurity and cyberbully (Digi Telecommunications, 2018b). On the other hand, NICTSeD aims to promote cybersecurity awareness among teachers and school students (CyberSecurity Malaysia, 2019f). However, Jones and Mitchell (2016) proposed that youth digital citizenship education needs to separate from digital literacy and cyberbully prevention. Jones and Mitchell (2016) also stated that youth digital citizenship education should nurture online respectful behaviour toward others and expand youth participation in online civic activities. A study also found that students criticise the school's efforts to organise cybersecurity awareness programmes, which send repeated messages and are less student-centred (Adorjan & Ricciardelli, 2019).

Parents tend to expect school administrators and teachers to overcome digital citizenship issues (Hollandsworth, Dowdy, & Donovan, 2011). In reality, students began using digital devices at home before they enrolled in school, which required parents to guide their children once they started using digital devices (Hollandsworth et al., 2011). UNICEF also found that most children's online activities occurred at home (UNICEF Office of Research – Innocenti, 2019). Besides, students also use the digital device during afterschool time (Howard, 2015). Hollandsworth et al. (2011) stated that

sending children out to the traditional community is not permissible without educating them about manners, law and moral behaviour. Thus, children should not be allowed to participate in the digital community without a proper guide on etiquette, law and ethical behaviour.

In the school environment, educators often distinguish digital citizenship as technological issues instead of issues that affect the community (Kane, Ng-A-Fook, Radford, & Butler, 2016; Ribble, 2012). Educators were unprepared with problems due to students bringing digital devices to school (Ribble, 2015). Some schools then introduced the Bring Your Own Device (BYOD) concept, which allowed digital device presence in schools (Hollandsworth, Donovan, & Welch, 2017). Issues of inappropriate use of technology become worsen with cyberbully cases (Ribble, 2015). To that end, educators tend to restrict the usage of technology or use punitive approaches to the students who break the school rules regarding digital device usage (Edwards & Wang, 2018; Hollandsworth et al., 2011; Ohler, 2011). A study found that the prohibition of digital device in school has no impact on students' attitude in the classroom and their social interaction with classmates (Kvardová, Valkovičová, & Šmahel, 2019). Besides, technology restriction may hamper the opportunities to develop digital skills and diminish online engagement for all students (UNICEF Office of Research – Innocenti, 2019).

As the usage of digital technology and social network platforms among youth is increasing, parents, educators, and policymakers are concerns about the benefits and perils of these new media (Noula, 2019). A study in Europe found that policymakers assume Internet users with high digital skills are well-prepared in avoiding or curb online risks (Livingstone, Haddon, Görzig, & Ólafsson, 2011). Digital citizenship issues are related to several levels of accountability for technology (Ribble,

Bailey, & Ross, 2004). Ribble et al. (2004) stated that some problems might involve the technology leaders, while others might require the involvement of educators. Hence, parents, teachers, educational leadership, and policymakers need to work in hand to address digital citizenship issues (Hollandsworth et al., 2011, 2017; Searson et al., 2015; Ribble & Miller, 2013; Ohler, 2011).

Scholars agreed that digital citizenship education should be taught in schools with corporations from policymakers, authoritative, parents and society (Hollandsworth et al., 2011, 2017; Gazi, 2016). Several studies revealed that instead of mitigating the Internet risks, parents, educators, educational leaders, policymakers, and government need to prepare children with digital citizenship skills and knowledge to produce an active, ethical and critical digital citizen (Shin et al., 2019; Hollandsworth et al., 2017; Ribble, 2015; Searson, Hancock, Soheil, & Shepherd, 2015; Ribble & Miller, 2013; Nansen, Chakraborty, Gibbs, MacDougall, & Vetere, 2012; Ohler, 2011). Thus, Searson et al. (2015) demanded that educational leaders develop digital citizenship initiatives by listening to students' and educators' opinions.

1.3 Problem statement

As the Internet is “a double-edged sword,” it could be positive and negative repercussions to the students based on their Internet attitude (Waters, Russell, & Hensley, 2020, p. 198). Even though students are active digital citizens, there is no clear evidence that they have achieved digital citizenship (Kim & Choi, 2018; Ohler, 2010).

In 2012, MOE introduced Virtual Learning Environment (VLE) to expose students to digital citizenship (Muhammad Sabiq, Megat Aman Zahiri, Mohd Asnorhisham, & Nadiahtun Azreen, 2020). However, there is a lack of information on school students' digital citizenship level (Mohamad Sahari et al., 2016). As previously mentioned, CyberSecurity Malaysia planned to develop NDCI, which will use education as a platform to disseminate digital citizenship knowledge and skills among students (Ramona Susanty et al., 2019). However, in order to develop educational content for students, the students' digital citizenship level needs to be attained and analysed beforehand. Ramona Susanty et al. (2019) explained that it is a prerequisite for CyberSecurity Malaysia to profoundly understand students' digital citizenship skills and knowledge as they are the primary target of digital citizenship. Moreover, Hui and Campbell (2018) underlined that the foundation for designing a digital citizenship curriculum is evaluating students' digital practices. Hence, it is imperative to identify students' digital citizenship level before designing an effective digital citizenship intervention programme (Erdem & Koçyiğit, 2019).

For this reason, this research is intended to fill a gap in existing research in the Malaysian context by investigating the secondary school students' digital citizenship level using a multidimensional instrument. The instrument is based on the REP framework, a multidimensional construct reflecting digital citizenship behaviour (Ribble, 2015; Ribble & Miller, 2013). Furthermore, SID 2019 celebration also used the REP framework for the campaign (CyberSecurity Malaysia, 2019g). Thus, the REP framework is a suitable framework to develop an instrument to evaluate students' digital citizenship level.

Aforementioned, MOE and MDEC have cooperated to develop DCS (MDEC, 2019; Shamila et al., 2016). One of the domains in DCS is digital citizenship which

assesses the ethical aspect. Despite having DCS, it is not a valid instrument to evaluate students' digital citizenship level since the primary purpose of DCS is to assess students' digital competency. Several scholars agreed that digital citizenship is a multidimensional concept that highlights online behaviour and knowledge (Kim & Choi, 2018; Choi, 2016; Mohamad Sahari et al., 2016; Ribble, 2015). Since digital citizenship contains a broader context, it is recommendable to highlight other aspects of digital citizenship to evaluate students' citizenship skills and knowledge. Thus, there is a need for a comprehensive instrument to assess students' digital citizenship level.

A cybersecurity survey conducted in 2016 found that Malaysian schoolchildren mainly accessed the Internet at home with 84.67% and at school with 12.11% (CyberSecurity Malaysia, 2019b). Students have been living a double life since they have to leave their online identity when they go to school and reenter the digital world after school hours (Ohler, 2011; Ben-David Kolikant, 2010). Undoubtedly, students primarily engage in Internet activities within environments closed to parents, educators, siblings and peers. Therefore, the mediation from parents, educators, siblings and peers may be associated with students' digital citizenship level.

1.4 Purpose of the study

The purpose of this quantitative study was to examine the lower secondary school students' digital citizenship level and the effect of digital device experience on students' digital citizenship level. This study also intended to identify the relationship between online mediation towards students' digital citizenship level.

1.5 Objective of the study

The following were the research objectives of this study:

i. To examine students' digital citizenship level in terms of REP (respect, educate and protect).

ii. To determine the effect of students' digital device experience (years of digital device usage and the average of daily Internet usage) on digital citizenship level in terms of REP (respect, educate and protect).

iii. To identify the relationship between online mediation towards students' digital citizenship level.

1.6 Research question

The following were the research questions of this study:

i. What is the students' digital citizenship level in terms of REP (respect, educate and protect)?

ii. What is the effect of students' digital device experience (years of digital device usage and the average of daily Internet usage) on the students' digital citizenship level in terms of REP (respect, educate and protect)?

iii. What is the relationship between online mediation and students' digital citizenship level?

1.7 Research hypothesis

There were seven hypotheses for this study:

i. H_{01}: Students' digital device experience (years of digital device usage) does not affect students' digital citizenship level in terms of respect.

ii. H_{02}: Students' digital device experience (years of digital device usage) does not affect students' digital citizenship level in terms of educate.

iii. H_{03}: Students' digital device experience (years of digital device usage) does not affect students' digital citizenship level in terms of protect.

iv. H_{04}: Students' digital device experience (average of daily Internet usage) does not affect students' digital citizenship level in terms of respect.

v. H_{05}: Students' digital device experience (average of daily Internet usage) does not affect students' digital citizenship level in terms of educate.

vi. H_{06}: Students' digital device experience (average of daily Internet usage) does not affect students' digital citizenship level in terms of protect.

vii. H_{07}: There is no significant relationship between online mediation and students' digital citizenship level.

1.8 Theoretical and conceptual framework

1.8.1 Theoretical framework

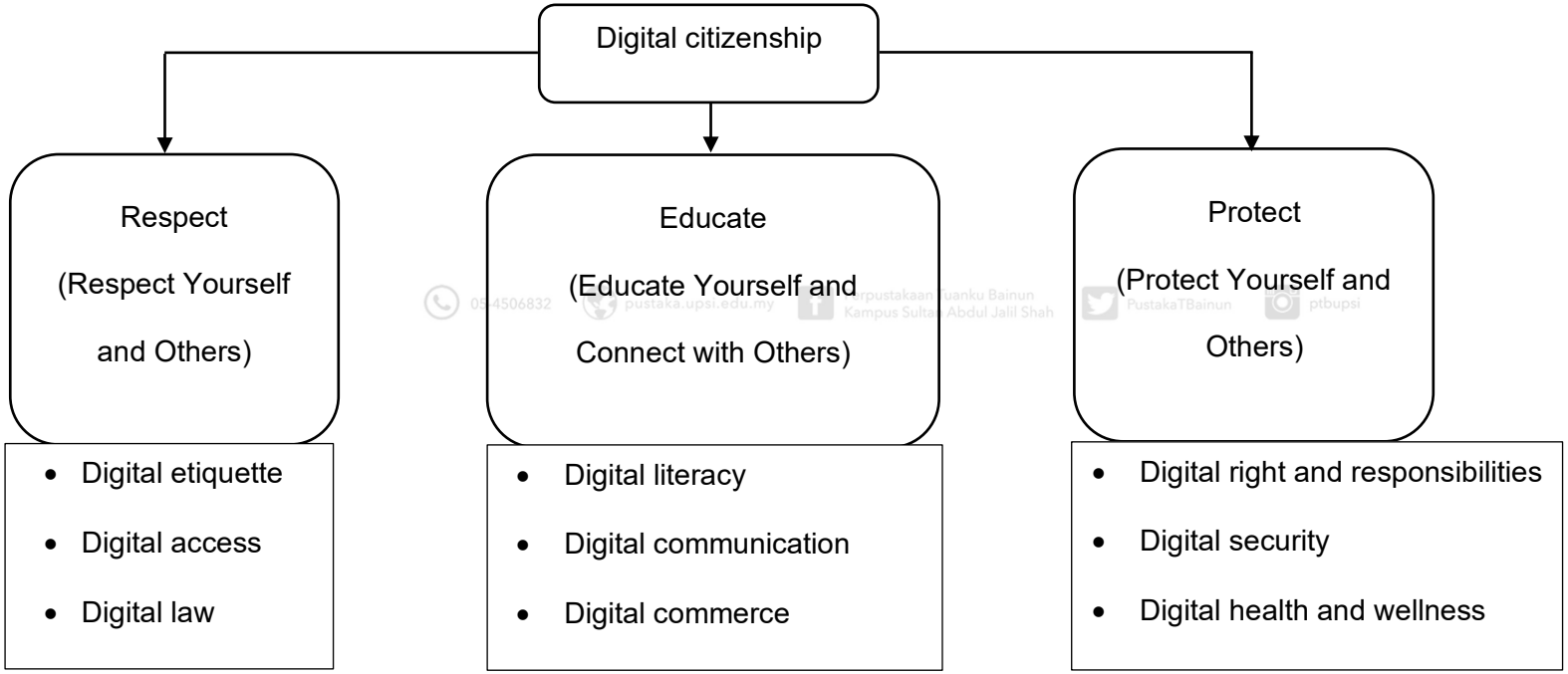

Figure 1.1 Digital citizenship based on the REP model. Adopted from Ribble, 2015

1.8.2 Conceptual framework

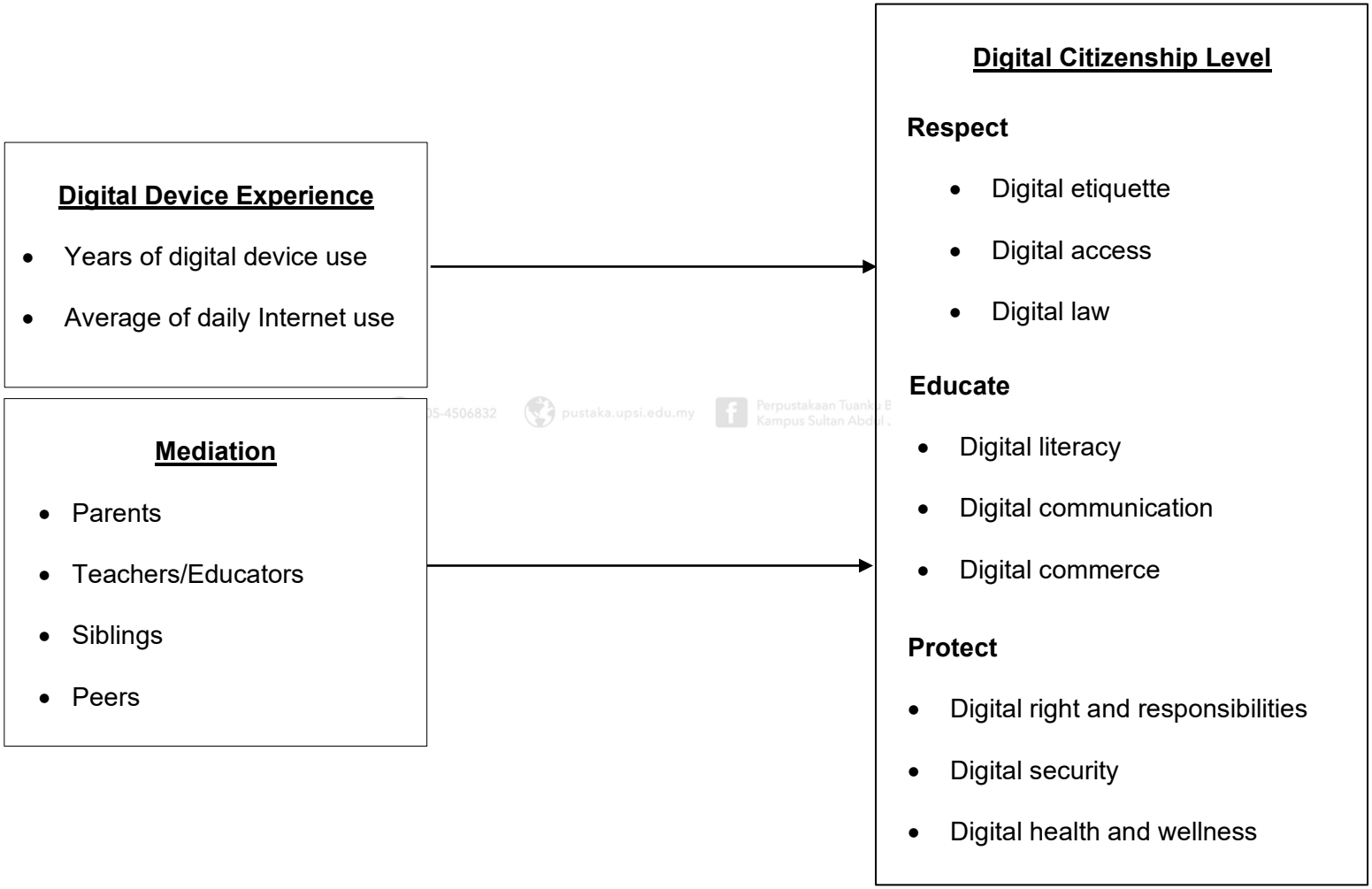

Figure 1.2 Conceptual framework of this study

1.9 Importance of research

This research is crucial to:

i. The Ministry of Education

Isman and Gungoren (2014) proposed that schools need to educate students to be good digital citizens. As there are limited findings on students' digital citizenship awareness, this study could help MOE understanding students' digital citizenship level awareness. MOE has cooperated with many agencies to create awareness programmes about Internet risk and Internet etiquette. Hence, this study could help determine any weaknesses or shortages in any programme or campaign. MOE could also develop any resources or materials for digital citizenship education based on this study's findings. MOE also could use the outcome of this study to support NDCI.

ii. National Digital Citizenship Initiative (NDCI)

CyberSecurity Malaysia acknowledges that the primary target users of digital citizenship are school students (Ramona Susanty et al., 2019). Ramona Susanty et al. (2019) stated that to develop NDCI, it is a prerequisite that CyberSecurity Malaysia investigates deeper what the students want and need. For this reason, the finding of this study could support the data required by CyberSecurity Malaysia.

iii. Policymakers

Even though parents acknowledge their parenting responsibility toward their children, parents are looking forward to policymakers' intervention in regulating rules or laws that could prevent children from online harms and intimidate their children from misusing the technology (Yardi & Bruckman, 2011). Policymakers tend to develop programmes and initiatives related to cybersecurity (Nansen et al., 2012). Policymakers also should provide support for parents and children to develop digital skills (UNICEF Office of Research – Innocenti, 2019). Besides, Ribble and Bailey (2007) stated that digital citizenship could serve as the foundation for school policies. Therefore, this study could provide a glimpse of current students' digital practice and their digital citizenship skills and knowledge which would help policymakers to design regulations or initiatives to support students' digital citizenship development.

iv. Educators

Teachers should not fear teaching digital citizenship education (Young, 2014). Educators should have a clear picture of students' digital citizenship awareness before deciding which educational approach to guide the students using technology. For that reason, this study could help teachers to understand the students' digital practice and plan appropriate interventions to resolve students' inadequate digital citizenship skills and knowledge.

v. Parents

Parents play a pivotal role as the first model on children's attitude, civic and moral values (Wang & Xing, 2018). Besides, parents are children's role models in nurturing digital citizenship practices (Hill, 2020; Bennett, Aguayo, & Field, 2016). Active parental awareness will help to promote children to become better digital citizens (Wang & Xing, 2018). Parents also need to support children's Internet use for positive development (Dedkova & Smahel, 2019). Thus, this study expected to increase parents' knowledge to develop mediation strategies to monitor their children's online activity.

vi. Students

As Ghamrawi (2018) cited, Collier (2009) stated that digital citizenship nurtures positive online behaviour and not only addresses harmful online behaviour. As the students are part of the digital community, they need guidance, responsibility, and opportunities to make mistakes and learn from them (Ohler, 2011). Through this study, students can reflect on their attitude in using technology and their online behaviour. Moreover, students' positive online behaviour could influence their peer's digital practice.

1.10 Study limitation

This study examined the students' digital citizenship level and determines the impact of students' digital devices experience on digital citizenship in terms of REP. The

students' digital citizenship level was examined based on Ribble's (2015) digital citizenship framework, REP; respect, educate and protect. This study used the REP framework, which Ribble organised all nine elements of digital citizenship under the sub-constructs of respect, educate and protect. The framework will be discussed further in Chapter 2 – Literature Review. There are other frameworks available for digital citizenship. Some of the frameworks are discussed in the following chapter.

Through CyberSecurity Malaysia, Malaysia Government also plans to develop NDCI to build digital citizenship skills and knowledge among students (Ramona Susanty et al., 2019). Besides, Malaysia's SID 2019 celebration focused on youth and digital citizenship (CyberSecurity Malaysia, 2019h). Therefore, there is a need to understand the current situation of students' digital citizenship awareness.

Due to that reason, this study focused on lower secondary school students aged 13-15 years old. However, Form 3 students need to sit for a national examination. Hence, the study was limited to Form 1 and Form 2 students. Table 1.1 shows the age of secondary school students based on the Malaysian educational system.

Table 1.1

Age description for secondary school children in Malaysia

Category	Level	Age
Lower Form	Form 1	13 years old
	Form 2	14 years old
	Form 3	15 years old
Upper Form	Form 4	16 years old
	Form 5	17 years old

The sample of this study was drawn from one of the districts in Selangor. The students were selected from six schools in Sepang District. Besides, a questionnaire is the only source of data from the respondents. The data of this study were also not triangulated with other methods. Therefore, the findings cannot be generalised to represent all Form 1 and Form 2 students nationwide.

This study focused on students' digital devices experience as a factor that could lead to the development of secondary school students' digital citizenship awareness regarding respect, educate and protect. However, this study did not include students' family socioeconomic background, which could contribute to students' digital device usage (Sergi, Gatewood Jr., Elder, & Xu, 2017).

This study emphasised online mediation from parents, teachers, siblings, and peers towards developing students' digital citizenship. Even though other individuals' mediation might influence students' digital practice, this study highlighted the individuals close to the students' daily lives.

1.11 Operational definition

1.11.1 Digital citizenship

There are several definitions of digital citizenship. However, for this study, digital citizenship is defined as a notion that aims to teach appropriate manners to all technology users, including parents, educators, and students, on how to use technology (Ribble & Bailey, 2007). Digital citizenship incorporates guidelines, norms,

ideas and values to ensure positive and meaningful use of technology (Alqahtani, Alqahtani, & Alqurashi, 2017).

Ribble et al. (2004) state that digital citizenship comprises nine elements. That provide different scopes to guide appropriate manners to all technology users. The elements are digital access, digital commerce, digital communication, digital education, digital etiquette, digital responsibility, digital right, digital safety, and digital security. In this study, all nine digital citizenship elements are used to evaluate students' behaviours, knowledge and skills in using digital devices to access the Internet.

1.11.2 REP (Respect, Educate and Protect)

Aforementioned, digital citizenship consists of nine different elements. Ribble developed a digital citizenship framework known as REP (respect, educate, and protect) (Curran & Ribble, 2017; Ribble, 2015; Ribble & Miller, 2013). All the elements were categorised under three main themes; Respect Yourself/Respect Others, Educate Yourself/Connect with Others and Protect Yourself/Protect Others (Curran & Ribble, 2017). Each theme comprises three different elements.

Each theme in the REP framework focuses on technology users and their obligations to other users (Ribble, 2015). This framework is used to examine students' digital citizenship level based on each of the REP framework themes.

1.11.3 Digital device experience

In this study, students' digital device usage experience defined as students' experience using digital devices in their life. Students' digital device usage experience could lead to good proficiency. Besides, students' digital competency plays an essential part in nurturing digital citizenship (Pérez-Escoda, Iglesias Rodríguez, & Sánchez-Gómez, 2016).

1.11.4 Years of digital device usage

Years of digital device usage focus on students' duration using digital devices in their life (Xu, Yang, Zhu, & MacLeod, 2017a). This variable could help the researcher understand how early the students were exposed to digital tools.

1.11.5 Average of daily internet usage

Students' average of daily Internet usage is associated with the frequency of Internet usage and the amount of time they spent online (Xu et al., 2017a). In this research, the researcher intended to determine the average of how long the students spend their time online every day.

1.11.6 Digital devices

Digital devices consist of microcomputers or microprocessors that allow users to access the Internet (Palaiologou, 2016). For this study, the context of digital devices referred to computers, laptops and hand-held devices such as tablets or smartphones and smartwatches that enable users to connect to the Internet.

1.11.7 Online mediation

Livingstone and Helsper (2008) described mediation as the supervision of the relation between children and media usage. In this study, online mediation referred to the supervision, intervention, guidance and influence from their parents, teachers, siblings and peers in students' digital practice. These individuals are closed to the students either in school or after school hours.

1.12 Summary

This chapter focused on showing the justification for conducting this study. Hence, this chapter included background research and problem statements. This chapter discussed digital citizenship issues and problems. This chapter also presented the study objectives to enlighten about the goals of the study. Study limitations also stated to highlight the boundaries of this study. Last but not least, this chapter also included the operational definitions used in this study. The following chapter will discuss the literature review of the study.