Digital Citizenship of People

Onuma Suphattanakul
Ekarach Maliwan

DOI: https://doi.org/10.37178/ca-c.23.1.014

Onuma Suphattanakul, *Faculty of Liberal Arts, Rajamangala University of Technology Srivijaya, Thailand*
Email: onuma.s@rmutsv.ac.th

Ekarach Maliwan*, Faculty of Liberal Arts, Rajamangala University of Technology Srivijaya, Thailand*
Email: ekarach.m@rmutsv.ac.th

ABSTRACT

Digital citizenship is the proper use of digital technologies by citizens. So being a good digital citizen needs certain talents and attributes. This study's goals were to (1) assess people's digital citizenship and (2) examine the effect of digital citizenship attributes on the digital citizenship. This research used an online survey as a quantitative technique. The study included 438 residents of HatYai and Songkhla Municipality in Thailand. The data were analyzed using mean, standard deviation, correlation coefficient, and regression to evaluate the relationships between variables and hypotheses. The findings showed high levels of digital citizenship in both municipalities, including (1) digital citizen identity, (2) digital activities, (3) skill and capacity for digital environment, and (4) digital ethics. The results also showed that people's digital citizenship was strongly linked to (1) digital access, (2) care and nurturing, (3) knowledge and understanding, (4) ethical reasoning, and (5) self-control. The findings may help improve digital citizenship. The findings may also help create future policies, regulations, and infrastructure to properly promote digital citizenship.

Keywords: digital citizenship, digital citizen identity, people, citizenship, Thailand

BACKGROUND AND SIGNIFICANT OF THE PROBLEM

The world has undergone many changes in the 21st century and the internet serves a vital role in the communication revolution in particular. The use of internet has brought about changes in two essential dimensions. First, the use of the internet as a communication tool is considered a big change or as the revolution of communication technology. Second, the use of the internet as a tool to create new social outcomes by means of social platforms where internet users interact with each other at various issues relating to economy, society, politics and daily lifestyles, for example. At present, the popular social media platforms are Instagram, YouTube, and Facebook [1].

In addition, social media has played an important role in changing the country in political, social and technological dimensions. Published in partnership between We Are Social and Hootsuite, the Global Digital Report [2] on the insights of digital behaviors of people around the world revealed that about 69% of Thai people are internet users. The report also cited that Thailand was the country ranking first in terms of active social media users and 78% of Thai people used social media as their main channels for news updates. Moreover, Thailand ranked eighth in terms of active

Facebook users, ranked eighteenth in terms of active YouTube users, and ranked sixteenth in terms of active Instagram users. The popularity of the social media sites among Thai people unavoidably affected their digital behaviors, according to the report. Even though the development in different aspects in Thailand offered easy access to information technology among Thai people, we could not deny that social media have both advantages and disadvantages. For this reason, all internet users should be aware of unhealthy effects of social media use possibly caused by information overload, internet addiction and lack of digital literacy.

Digital citizenship has become a global trend since the internet and the information technology served a greater role in daily activities of people. Digital citizenship refers to the competencies of the citizen in internet usage, internet usage management, social media consciousness, and media literacy. According to [3], digital citizenship is an umbrella term that covers a whole host of important issues. Broadly, it's the guidelines for responsible, appropriate behavior when one is using technology. These are norms for the appropriate and responsible use of digital technology. Moreover, the competencies allow the citizen to use digital technology wisely and safely [4]. Hence, the digital citizen should be aware of opportunities and risks in the digital world. [5] stated that the achievement of digital citizenship comprises of four core components including digital ethics, digital media and information literacy, digital participation or engagement, and critical resistance.

Thailand took account of digital citizenship since the Thai government implemented the digital economy policy to empower the smart use of digital technologies and proudly step into citizenship in the digital age. Digital citizenship requires essential skills and attributes such as understanding of human beings, cultures and current social situations [5]. Because there are numerous factors directly and indirectly affecting the skill acquisition of the digital citizens, it is imperative for the citizens of the country to possess skills, technological know-how, advanced thinking and digital literacy in order to enjoy the benefits of cyberspace, to be aware of their rights, responsibilities and ethics, to be able to use the internet for political, economic, social and cultural participations, and to understand the legal protection for their rights as well as to ensure cyber security for themselves, their community and their country. However, there are a set of problems related to the development of the Internet and the digital citizenship. The problem concerns the provision of the information credibility, authenticity, and safety. In addition, issues with digital citizenship such as many internet crimes and scammers, and cyberbullying or online hate have occurred nowadays.

Thus, this study intended to access the digital citizenship of people in HatYai Municipality and Songkhla Municipality whether they are ready to become the Smart City according to the government strategy. This study attended to assess the current degree of digital citizenship of people and the attributes which might affect digital citizenship of people. In addition, the results might be a guideline for increasing a good digital citizenship and develop relevant policies and laws as well as the infrastructure system to fully support digital citizenship in the future.

OBJECTIVES

1. To access the degree of digital citizenship of people in HatYai Municipality and Songkhla Municipality
2. To examine the effect of digital citizenship attributes on the digital citizenship of people in HatYai Municipality and Songkhla Municipality

SIGNIFICANT OF THE STUDY

The findings were to:

1. Contribute to the body of knowledge of digital citizenship and digital citizenship attributes;

2. Realize the current degree of digital citizenship of the people;
3. Evaluate the effect of digital citizenship attributes on the digital citizenship of the people;
4. Improve a guideline for increasing a good digital citizenship; and
5. Develop relevant policies and laws as well as the infrastructure system to fully support a good digital citizenship in the future.

SCOPE OF THE STUDY

Population

The target population of the study was the internet users among 150,054 people in HatYai Municipality (September 2020) and 63,324 people in Songkhla Municipality (December 2020).

Sample Size

The sample size was identified by using Krejcie and Morgan's sample size determination table [6]. A sample size of 400 people from HatYai Municipality and a sample size of 400 people from Songkhla Municipality. Simple Random Sampling was employed as a sampling technique. In addition, a purposive sampling was applied to select the respondents who were able to use digital media or social media through the internet.

Contents

Since this research was aimed at studying the digital citizenship of people, the independent variables were factors affecting the digital citizenship of the people which consists of five aspects of the digital citizenship attributes as; (1) digital access, (2) care and nurture, (3) knowledge and understanding, (4) ethical reasoning, and (5) capability of self-control. Meanwhile, the dependent variables were four aspects covering the digital citizenship of the people including (1) digital citizen identity, (2) digital activities, (3) skill and capability for digital environment, and (4) digital ethics [7].

CONCEPTUAL FRAMEWORK

After studying the theories and concepts relating to the digital citizenship, researchers set the conceptual framework of this research as below.

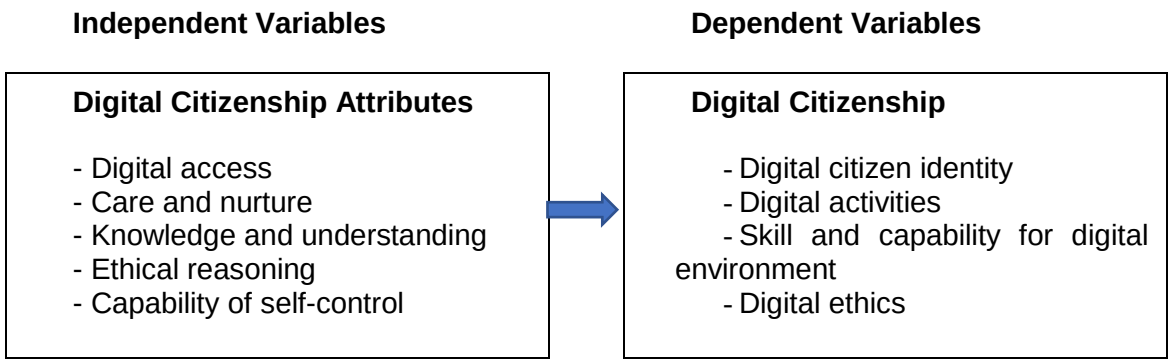

Figure 1: Conceptual Framework

HYPOTHESES

The followings were the hypotheses of this research.

H1: The people in HatYai Municipality and Songkhla Municipality had digital citizenship at high levels.

H2: The digital citizenship attributes positively related to the digital citizenship of the people in HatYai Municipality and Songkhla Municipality.

METHODOLOGY

This quantitative research used an online questionnaire as the research instrument. After studying the concepts and theories, researchers set the variables in the conceptual framework and designed the questionnaire. Then the survey questionnaire was proposed to academic experts to assess content validity. It was a questionnaire of five-rating scale. The five ratings were highest, high, medium, low and lowest.

Goodness of Measurement

Validity: Researcher carried out literature reviews, defined relevant terms, and designed the questionnaire for data collection. The research instrument was then proposed to experts to assess the content validity, the content coverage of the research topic and the consistency of its objectives [8].

Reliability: After appropriate adjustments were made according to the expert advice, the adjusted questionnaire was tried out on 30 people who were not the population. Researchers employed Cronbach's alpha method to measure the reliability of the questionnaire. According to the measurement, the Cronbach's alpha results of the digital citizenship attributes were between 0.76 and 0.89; meanwhile, the Cronbach's alpha results of the digital citizenship of the people were between 0.80 and 0.91. The results confirmed the reliability of the questionnaire[9].

Data Analysis Techniques

This study used descriptive statistics including frequency and percentage to analyze the personal information of the respondents including gender, age, occupation, and education level. Mean and standard deviation were also used to analyze the level of digital citizenship of the people. Correlation coefficient and regression analysis were used to measure the relationship between variables and examine the hypotheses.

FINDINGS

The data was collected by using the online questionnaire distributed to 400 people in HatYai Municipality and 400 people in Songkhla Municipality. A total of 438 complete responses were received from 204 respondents in HatYai Municipality, amounting to 51% of the responses in HatYai Municipality, and 234 respondents in Songkhla Municipality, amounting to 58.5% of the responses in Songkhla Municipality. Most of the respondents were male, between the ages of 21 to 20, students, and had a bachelor's degree.

The Degree of Digital Citizenship of the People

The first research objective of this study was to assess the degree of digital citizenship of the people. As shown in Table 1, the results revealed that the respondents in HatYai Municipality had digital citizenship on the whole at high level with the mean value was 4.08 and standard deviation of .53. When considering individual aspects, the respondents focused on the most important to 'digital activities' with the mean value was 4.14 and standard deviation of .57. The rest were 'skill and capability for digital environment' with the mean value was 4.09 and standard deviation of .61, 'digital ethics' with the mean value was 4.09 and standard deviation of .58, and 'digital citizenship identity' with the mean value was 3.97 and standard deviation of .66, respectively.

Meanwhile, the respondents in HatYai Municipality had digital citizenship on the whole at high level with the mean value was 4.07 and standard deviation of .51. When considering individual aspects, the respondents attached most importance to 'digital ethics' with the mean value was 4.15 and standard deviation of .60. The next aspect

was 'digital citizenship identity' with the mean value was 4.10 and standard deviation of .63 and the least was 'digital activities' with the mean value was 3.98 and standard deviation of .54. Thus, the study concluded that first hypothesis (H1) was supported.

Table 1

Digital Citizenship of the People

Aspects of Digital Citizenship	HatYai Municipality		Level of Digital Citizenship	Songkhla Municipality		Level of Digital Citizenship
	Mean	S.D.		Mean	S.D.	
Digital citizenship identity	4.10	.63	high	3.97	.66	high
Digital activities	3.98	.54	high	4.14	.57	high
Skill and capability for digital environment	4.05	.58	high	4.09	.61	high
Digital ethics	4.15	.60	high	4.09	.58	high
Total	4.07	.51	high	4.08	.53	high

Effect of Digital Citizenship Attributes on the Digital Citizenship of the People

Regarding the second objective, the research was aimed at examine the effect of digital citizenship attributes on the digital citizenship of people in two municipalities. As shown in Table 2, the results indicated that the digital citizenship attributes on the whole positively related to their digital citizenship with the statistical significance at the level of 0.01. The values of the correlation coefficient (r) ranged between .542 and .695, representing quite positive relationship. The results showed that 'knowledge and understanding' had the highest degree of relationship with the digital citizenship of people with the r value of .695. The rest were 'care and nurture' with the r value of .667, 'capability of self-control' with the r value of .598, 'ethical reasoning' with the r value of .549, and 'digital access' with the r value of .542, respectively. Furthermore, the results showed that there have not multicollinearity when the digital citizenship attributes regarded as independent variables were correlated since the values of the correlation coefficient (r) were not greater than 0.8 [10]. Thus, the multiple linear regression analysis was adopted to model the linear relationship between the independent variables and the dependent variables.

Table 2

Pearson Correlation Coefficient between Digital citizenship attributes and Digital Citizenship of the People

Digital Citizenship Attributes	1	2	3	4	5	6
1. Digital access	1					
2. Care and nurture	.641**	1				
3. Knowledge and understanding	.680**	.713**	1			
4. Ethical reasoning	.387**	.393**	.379**	1		
5. Capability of self-control	.488**	.461**	.465**	.597**	1	
6. Digital citizenship of the people	**.542****	**.667****	**.695****	**.549****	**.598****	**1**
** Correlation is significant at the 0.01 level						

Multiple Linear Regression Analysis

Researchers used stepwise regression as a data-mining tool in multiple linear regression analysis in order to examine the second hypothesis (H2) and to study the independent variables to predict the outcomes of the dependent variables. As shown in Table 2, the results suggested that 'knowledge and understanding', 'capability of

self-control', 'care and nurture', and 'ethical reasoning' were the four independent variables that could be used to predict the digital citizenship of the people, representing statistical significance at the level of 0.001. All four variables could explain the digital citizenship of people, accounting for 63.8%. The equations were the following.

The forecasting equation using raw scores was followed.

Digital Citizenship of the People (Y) = 0.505 + .308 (knowledge and understanding) + .189 (capability of self-control) + .183 (care and nurture) + .182 (ethical reasoning)

The forecasting equation using standard scores was followed.

Digital Citizenship of the People (Z) = .351 (knowledge and understanding) + .203 (capability of self-control) + .245 (care and nurture) + .199 (ethical reasoning)

According to the forecasting formula, the digital citizenship attributes regarded as independent variables were positively related to the digital citizenship of people with a statistical significance. In other words, the four independent variables strongly influenced the digital citizenship of people. As shown in Table 3, 'knowledge and understanding' had greatest influence on the digital citizenship of people with the β value of .308. The rest were 'capability of self-control' with the β value of .189, 'care and nurture' with the β value of .183, and 'ethical reasoning' with the β value of .182, respectively, while the F value was 190.653. Thus, the study concluded that the second hypothesis (H2) was supported.

Table 3

Stepwise Regression for Prediction of Digital Citizenship of the People

Predictors	B	Beta	t	p value
Knowledge and understanding	.308	.351	8.285	.000
Capability of self-control	.189	.203	5.280	.000
Care and nurture	.183	.245	5.783	.000
Ethical reasoning	.182	.199	5.433	.000
Constant = 0.505, R^2 = .638, Adjust R^2= .634, F = 190.653, p value < .001 Dependent Variable: Digital Citizenship of the People				
***significant at the level of 0.001**				

DISCUSSION

The Degree of Digital Citizenship of the People

The results showed that the four dimensions of the digital citizenship consisted of digital citizenship identity, digital activities, skill and capability for digital environment, and digital ethics were at high levels. It was implied that the respondents in the two municipalities had a high level of knowledge and understanding as well as awareness of digital citizenship. Moreover, they were aware of the role of a good digital citizen and had potential to use digital technology wisely. Getting ready for the digital era, they had changed their behaviors to embrace the dramatic changes in the digital world.

Digital activities: The results showed that the respondents used social media platforms to engage in digital activities at various issues concerning politics, economy, society and daily lifestyle. They expressed their attitudes towards policies and laws, voted electronically, and submitted online petitions. Furthermore, they made financial transactions on social media sites, did online shopping, and monitored the effectiveness of numerous organizations as well as called out for social justice through the internet and social media platforms. Besides, the people were able to used digital

technologies and social networking sites not only to facilitate their education and work but also to ease their personal and family problems.

Digital citizenship identity: The results revealed that the respondents attached importance to self-expression on online social networks. They used social media as their communication channels to share their ideas, express their views, posted their photos and make comments. Being able to manage their digital information, they knew exactly what should be disclosed or not to be disclosed on social networking sites. They were aware of digital security and privacy protection. In addition, the respondents had awareness of potential online dangers to their personal and business information such as cyber-attacks and data breaches. Furthermore, they understood the measures of intellectual property protection.

Digital ethics: The results indicated that the respondents also placed importance to digital responsibility. Realizing their rights and freedom of expression, they were respectful and responsible for their digital footprints. They respected the opinions of other internet users on social media and adhered to the rules for online etiquettes. Additionally, they were aware of internet dangers caused by hackers and spoofing attackers as the cybercriminals were harmful to property, image and reputation of people. Moreover, they could deal with cyberbullying, online racism and digital discrimination. They were also able to avoid online risky, violent or inappropriate contents. More importantly, the people had knowledge of the laws relating to computer crimes and offences, and had understanding about copyrights and intellectual properties. These digital behaviors reflected that the people were aware of the cyber security and digital ethics.

Skill and capability for digital environment: The results showed that the people had good technical capability of using digital tools such as computers, smartphones and tablets. They had advanced skills at using digital media and social networking sites. The skills were critical thinking, digital reading and comprehension, and adaptability, for example. Besides, they had the ability to adapt themselves to digital technologies amidst the situational changes in economy, society and politics. Moreover, they had capability of controlling the use of social media and electronic devices to protect themselves from digital addiction.

The results were consistent with the study of [11] which found that the people in the two municipalities had an awareness of digital technology at high level. However, their common problems were limited internet access. The research results were also in accordance with the study of [11]on the digital citizenship of undergraduate students in the public higher education institutions and the study of [12] on the digital citizenship of secondary school students. The two studies found that the digital citizenship of undergraduate students in the public higher education institutions and the digital citizenship of secondary school students were at high levels.

Effect of Digital Citizenship Attributes on the Digital Citizenship of the People

The research results revealed that the digital citizenship attributes on the whole and in all five aspects positively related to the digital citizenship of people with the statistical significance at the level of 0.01. The regression analysis reflected that the people who have good digital access, receive proper care and nurture, have broad knowledge and deep understanding of digital technology, have competence in ethical reasoning, and have the skill of capability of self-control were those who have high levels of digital citizenship. These followings were how digital citizenship attributes affected the digital citizenship of the people.

*Digital access***:** The results showed that the people could use digital media and social networking sites through the internet anytime and anywhere since they had their own devices such as mobile phones, tablets and computers. They were able to use computers and mobile apps to simplify their daily activities. Therefore, the digital accessibility of the people positively affected the digital citizenship of the people.

Care and nurture: The results demonstrated that family members, friends, surrounding people and education affected the ways that the people used the internet, shared knowledge and offered suggestion about digital media and social networks. Therefore, proper care and nurture given by family members and surrounding people had beneficial influence on the digital citizenship of the people.

Knowledge and understanding: According to the research results, knowledge and understanding had most positive relationship with the digital citizenship of the people. The finding reflected that the people had proper knowledge and understanding of the usage of digital media and social networking sites. This digital citizenship attribute encouraged the people to use digital technology smartly and to protect themselves from various digital risks. Furthermore, the attribute supported the people to know their rights, to be socially responsible in the modern digital world, to realize both positive and negative effects of digital technology on the society, as well as to be able to use digital media and social networking sites efficiently. Therefore, knowledge and understanding of the use of digital media and social networking sites positively affected the digital citizenship of the people.

Ethical reasoning: The results showed the people had the ability to evaluate reliability and accuracy of online information received from digital media and social networking sites. The people also had the ability to make online comments, posted photos and shared text messages appropriately. The people employed citation practices when sharing information, news, photos on their social media platforms. Therefore, ethical reasoning positively affected the digital citizenship of the people.

Capability of self-control: The results showed that the people were confident about expressing their opinions and showing their identities on social networking sites. They verified online information before posting and sharing. Moreover, the people could assess the effects of social media use on themselves and societies. Therefore, capability of self-control was another attribute that had beneficial influence on the digital citizenship of people.

The research results were consistent with the study of [13] on the influence of parental involvement and socioeconomic status on the digital citizenship of adolescents. The research findings indicated that the adolescents whose parents were actively involved in the use of digital technologies and online activities tended to be courteous online and had digital security at high level. Besides, the findings showed that parental involvement and socioeconomic status could be a firm prediction of the positive digital citizenship of the adolescents. The research results were also in line with the study of [14]) on psychosocial factors affecting the digital citizenship behaviors of high school students. The research finding showed that the factor that affected the respect for digital rules and other internet users the most was the good attitude towards digital citizenship. Moreover, the factor that affected the digital participation and responsibility of high school students the most was the open-minded personality. However, the research results were not consistent with the study of [15], revealing that the digital usage behaviors were moderately related to the digital citizenship of the people with the statistical significance at the level of 0.01.

CONCLUSION

Digital citizenship of people reflected their knowledge of and competence in efficient use of digital technologies, and showed their awareness of both positive and negative effects of digital technologies on society. The research was aimed at studying the level of digital citizenship, and the effect of digital citizenship attributes on digital citizenship. Hopefully, the results would be useful for both public and private organizations for the purpose of developing plans and relevant policies to fully support digital citizenship in the future.

REFERENCES

1. Patmanthara, S., D. Febiharsa, and F.A. Dwiyanto. *Social Media as a Learning Media: A Comparative Analysis of Youtube, WhatsApp, Facebook and Instagram Utillization*. IEEE.
2. Pratiwi, M., *Business Survivability: Social Media as a Channel in the Pandemic Era.* Jurnal Komunikasi Ikatan Sarjana Komunikasi Indonesia, 2021. **6**(1): p. 121-128.DOI: https://doi.org/10.25008/jkiski.v6i1.498.
3. Hollandsworth, R., L. Dowdy, and J. Donovan, *Digital citizenship in K-12: It takes a village.* TechTrends, 2011. **55**(4): p. 37-47.DOI: https://doi.org/10.1007/s11528-011-0510-z.
4. Fediy, O., L. Protsai, and N. Gibalova, *Pedagogical Conditions for Digital Citizenship Formation among Primary School Pupils.* Revista Romaneasca pentru Educatie Multidimensionala, 2021. **13**(3): p. 95-115.DOI: https://doi.org/10.18662/rrem/13.3/442.
5. Choi, M., *A concept analysis of digital citizenship for democratic citizenship education in the internet age.* Theory & research in social education, 2016. **44**(4): p. 565-607.DOI: https://doi.org/10.1080/00933104.2016.1210549.
6. Krejcie, R.V. and D.W. Morgan, *Determining sample size for research activities.* Educational and psychological measurement, 1970. **30**(3): p. 607-610.DOI: https://doi.org/10.1177/001316447003000308.
7. Hafner Fink, M. and T. Oblak Črnič, *Digital citizenship as multiple political participation? Predictors of digital political participation in Slovenia*. Teorija in praksa, 2014. **51**(6).
8. Borsboom, D., G.J. Mellenbergh, and J. Van Heerden, *The concept of validity*. Psychological review, 2004. **111**(4): p. 1061.DOI: https://doi.org/10.1037/0033-295X.111.4.1061.
9. Bajpai, S. and R. Bajpai, *Goodness of measurement: Reliability and validity.* International Journal of Medical Science and Public Health, 2014. **3**(2): p. 112-115.DOI: https://doi.org/10.5455/ijmsph.2013.191120133.
10. Simsek, E. and A. Simsek, *New literacies for digital citizenship.* Contemporary educational technology, 2013. **4**(2): p. 126-137.DOI: https://doi.org/10.30935/cedtech/6097.
11. Hundley, H.L. and L. Shyles, *US teenagers' perceptions and awareness of digital technology: a focus group approach.* New media & society, 2010. **12**(3): p. 417-433.DOI: https://doi.org/10.1177/1461444809342558.
12. Fernández-Prados, J.S., A. Lozano-Díaz, and A. Ainz-Galende. *Measuring digital citizenship: A comparative analysis*. Multidisciplinary Digital Publishing Institute.
13. Wang, X. and W. Xing, *Exploring the influence of parental involvement and socioeconomic status on teen digital citizenship: A path modeling approach.* Journal of Educational Technology & Society, 2018. **21**(1): p. 186-199.
14. Kaeduang, k., S. Pimthong, and P. Poonpol, *Social factors affected good citizenship behavior in digital world of high school students under the basic of education commission in Bangkok. Journal of Behavioral Science for Development, 11(1), 124-143.* . 2019.
15. Phornprasert, W. and R. Suttipong, *Digital citizenship of undergraduate students in Higher Education Institutions. Journal of Education Taksin University, 12(20), 104-117.* 2019.