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The Perceptions on Digital Citizenship Among Prospective Teachers: A Survey-Explorative Study in Westkalimantan-Indonesia

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Abstract

Digital citizenship has become a priority in education almost all over the world. This study aims to explore the level of perception of prospective teacher students regarding digital citizenship and analyze differences in the level of perception of digital citizenship in terms of gender, educational background, and various regional geographical characteristics. This research applies descriptive method with survey-explorative study. A total of 345 student teacher candidates in the sixth semester of the 2020/2021 Academic Year at Westkalimantan of Educational Personnel Education Institute (LPTK) were involved as samples. To explore the level of perceptions of digital citizenship of prospective teachers, this study adopted a questionnaire of Likert scale. Based on data analysis, it was found; (1) the perception profile of students (prospective teachers) about digital citizenship is quite varied; (2) there is no significant difference in the level of perceptions between female and male students; (3) there are significant differences in the level of student perception in terms of various educational backgrounds and geographical conditions from the area where they live. Prospective teachers need to be trained on the knowledge, skills, and values of digital citizenship before they provide learning services in schools.

Keywords: digital citizenship, perception, prospective teacher, gender, educational background, geographical region

1. Introduction

The concept of digital citizenship is characterized as a responsible and appropriate code of conduct related to the use of technology (Ribble, 2004) and the ability to display online engagement (De Marco, Robles, & Antino, 2014), self-efficacy that will be directly related to the Internet (Choi , Glassman, & Cristol, 2017). In this concept, several things are identified as the core of digital citizenship, namely: Digital Moral Principles, Media and Information Literacy, and Participation / Engagement (Winn, 2012). The digital moral principles refer to ethical and responsible online behavior, awareness of the political, social and cultural issues that arise in digital technology (Winn, 2012), and digital rights and responsibilities such as securing personal information or avoiding cyberbullying (Choi, 2016).

Media and information literacy includes the ability to efficiently access the Internet, evaluate information, communicate, collaborate and collaborate with individuals on digital platforms (Simsek & Simsek, 2013). Participation/engagement implies participation in political, economic, social, and cultural activities or campaigns using the Internet (Choi et al., 2017). This description of digital citizenship aligns with today's emerging issues such as internet security, privacy and security, online communications and relationships, online behavior and engagement, digital addiction, media and information literature, and copyright. Ethics, literacy, engagement, and critical participation are thus important in the formation and empowerment of digital citizenship (Choi, 2016).

In today's digitally mediated world, the influence of the rapid development of information and communication technology occurs in almost all aspects of life. One of them, on aspects related to citizenship and education. This is an undeniable fact. Unfortunately, efforts to overcome problems related to the development of digital citizenship are still not reflected in the school curriculum, especially in developing countries (Choi, 2016; Heath & Marcovitz, 2019) including Indonesia. What and to what extent are priorities set to address the key challenges of technology, digital media and social networks at all levels of education remains unclear. Therefore, the right model for the digital citizenship curriculum is needed to be able

to prepare students to become good citizens through self-improvement in an increasingly open and connected world (Lee, 2015). In line with that, Heath and Marcovitz (2019) emphasized that teacher education programs must integrate a more critical and justice-oriented approach. Thus, there is a clear need to develop policy orientations, approaches, and strategies to adopt digital citizenship education through related research approaches.

Several previous studies related to digital citizenship have been carried out. Wang & Xing (2018) concluded that the involvement and socioeconomic status of parents have a significant effect on digital citizenship of adolescents. Gleason & Gillern (2018) study explores social media practices for digital citizenship among primary and secondary school students. McGillivray et al. (2016) examined the relationship between digital citizenship and social change (ie, socioeconomic, status, and parental involvement). While Ata & Yildirim (2019) examines teacher candidates' perceptions of digital citizenship. Law et al. (2018) examine students' conceptions of digital citizenship and the challenges in its implementation in civic education. The researchers emphasized that digital citizenship education is one of the important competencies to be able to participate safely and ethically which is often neglected in education. The study by Hountras & Brandt (2015) found that there was an influence where students lived on their academic achievement. Students who live in densely populated or urban areas have higher academic achievement than those who live in rural regions. From the tracing study, previous research that explored the level of prospective teachers' perceptions about digital citizenship has not been much investigated.

This research aims to; (1) explore the perceptions of prospective teacher students regarding digital citizenship; (2) analyzing the different levels of perception of digital citizenship in terms of student gender and educational background (science, non-science, and language); (3) analyzing whether the level of perception of digital citizenship of prospective teachers is influenced by various geographical characteristics of regions.

2. Method

To explore prospective teachers' perceptions about digital citizenship, this study applies a descriptive method in the form of a survey-explorative study (Creswell, 2013). The target population of this study is student teacher candidates for the 6th semester of the 2020/2021 academic year at the Educational Personnel Education Institute (LPTK) in West Kalimantan, totaling 2,706 students. The sample of this study was taken using the multistage random sampling technique (Borg & Gall, 1989). From the selected LPTKs, namely FKIP Tanjungpura University, IKIP PGRI Pontianak, STKIP PGRI Singkawang, and STKIP PGRI Sintang, the number of samples was determined using the Krejcie & Morgan table (1970) and determined amount of 345 students.

A five responses (*strongly agree, agree, doubt, disagree, strongly disagree*) Likert Scale questionnaire was used (adopted Kuş et al., 2017) to explore the level of perceived digital citizenship of prospective teachers. This questionnaire consists of 49 items consisting of 6 dimensions, namely; digital communication (6 items), digital rights and responsibilities (9 items), digital participation (5 items), critical thinking (7 items), digital security (10 items), ethics (4 items), and digital trade (7 items). This questionnaire has been validated and has a Cronbach's alpha reliability coefficient of 0.733 and a reliability coefficient of 0.829.

Data on the perception level profiles of prospective teachers related to digital citizenship were analyzed using descriptive statistics (mean, standard deviation). Differences in the level of perception of digital citizenship in terms of gender, educational background (science, mathematics, non-science, and language), and various backgrounds of geographical characteristics of residence), data were analyzed using independent t-test and one-way anova. The research data were analyzed using SPSS version 21.

3. Results and Discussion

3.1 Profiles of Students' Perceptions on Digital Citizenship

Students' perceptions of digital citizenship in this study were grouped into: ***Agree*** (including *Strongly Agree* and *Agree*) and ***Disagree*** (including *Disagree* and *Strongly Disagree*). For the *Doubtful* response, it is considered not to give a rating or not to have given a perception of the statement items in the digital citizenship questionnaire. Profiles of students' perceptions of digital citizenship for each dimension are presented in Table 1.

Table 1. Profiles of ProspectiveTeachers' Perceptions on Digital Citizenship

No	Items of *DIGITAL CITIZENSHIP*	Agree	Disagree
	Digital Communication Dimension	f (%)	f (%)
1.	I don't mind everyone seeing what I share on social media.	124 (36)	174 (50,4)
2.	I send images, videos or information to someone I don't know.	38 (11)	192 (84,7)
3.	If my comments were responded with bullying and rude comments, I respond in the same way.	186 (53,9)	90(25.1)
4.	I like sharing everything I do on social media (Facebook, twitter, etc.).	185(45,5)	96(27,8)
5.	I communicate with people I don't know in digital platforms.	123(35,7)	148(42,9)
6.	I use abbreviations (wb, omg, ok, etc.) in my text in digital platforms	175(50,7)	114(33,1)
No	*Digital Right and Responsibility Dimension*	f (%)	f(%)
7.	I report the situations that bother me in digital platforms to the respective department.	179(51,9)	97(28,1)
8.	I am aware that my freedom is over where someone else's freedom begins when communication on the Internet.	203(58,8)	84(24,4)
9.	I actively use my e-state account.	284(82,3)	26(7,5)
10.	I use the e-complaint system (Presidential communication center, etc.) on mat-ters I think I've been wronged.	301(87,2)	27(7,8)
11.	I Don't know exactly the rights I have in digital platforms.	107(32,0)	155(44,9)
12.	I use abbreviations (wb, omg, ok, etc.) in my text in digital media	320(92,8)	5(1,5)
13.	I display behaviors that I do not embrace in real life by hiding my identity on the Internet.	112(32,4)	165(47,8)
14.	I don't access websites with inappropriate content (leading to racism, bigotry and vulgarity).	310(89,8)	17(5,0)
15.	I access blocked websites in different ways.	46(13,3)	259(75,1)
No	*Critical Thinking Dimension*	f(%)	f(%)
16.	Internet is a reliable source for economic, political and social issues.	237(68,7)	36(10,5)
17.	I participate in campaigns in digital platforms after searching in detail.	309(89,5)	9(2,6)
18.	I criticize the issues I consider unfair on the Internet.	195(56,5)	55(15,9)
19.	I accept the accuracy of the information I read digitally without question.	102(29,5)	152(44,1)
20.	Shares of my friends are reliable for me.	291(84,3)	13(3,8)
21.	The information I read in digital platforms influence my thoughts and decisions in daily life.	177 (51,3)	91(26,3)
22.	I support a social, economic, cultural campaign initiated through digital plat-forms.	61(17,7)	243(70,4)
No	*Digital Participation Dimension*	f(%)	f(%)
23.	I participate in campaigns in digital platforms after searching in detail.	226(65,5)	66(19,2)
24.	I criticize the issues I consider unfair on the Internet.	215(62,3)	41(11,9
25.	I accept the accuracy of the information I read digitally without question.	170(49,2)	61(17,7)
26.	Shares of my friends are reliable for me.	279(80,9)	18(5,2)
27.	The information I read in digital platforms influence my thoughts and decisions in daily life.	207(60,0)	52(15,0)
No	*Digital Security Dimension*	f(%)	f(%)
28.	I share my personal information with people I don't know in online platforms.	47(13,6)	267(77,4)
29.	I click on all kinds of links that I receive in digital platforms.	43(12,5)	240(69,6)
30.	I use an anti-virus program for my security in digital platforms.	241(69,8)	37(10,8)
31.	I download all kinds of programs I need from digital platforms.	127(36,8)	160(46,4)
32.	I usually use the same passwords in digital platforms.	36(10,5)	260(75,4)
33.	I come together people I meet in digital platforms in real life.	61(17,7)	202(58,5)
34.	I can edit my personal settings in my social accounts.	288(83,4)	14(4,1)
35.	I can use easily digital tools (computers, smart phones, etc.) for my needs.	301(87,3)	8(2,3)

No	Items of *DIGITAL CITIZENSHIP*	Agree	Disagree
	Digital Communication Dimension	f (%)	f (%)
36.	I can easily access the information I need over the Internet.	311(90,2)	8(2,3)
37.	I can download and use the applications / programs I need from digital plat-forms.	302(87,5)	10(2,9)
38.	If I have a problem with digital tools, I can solve it myself.	136(39,5)	97(28,1)
No	*Ethics Dimension*	f(%)	f(%)
39.	I am aware of copyright infringement situations.	77(22,3)	196(55,3)
40.	I use the content and information of others (images, articles, graphics, etc.) with-out obtaining permission.	318(92,2)	4(1,2)
41.	I do not install or download copyrighted works such as games, music, and films without paying the copyright.	74(21,4)	202(58,5)
42.	I prefer the website with the cheapest product.	194(56,2)	68(19,7)
No	*Digital Trade Dimension*	f(%)	f(%)
43.	I prefer the website with the cheapest product.	217(62,9)	38(11,1)
44.	I do shopping in digital platforms.	226(65,5)	38(11,0)
45.	I take into account reviews when I choose or not choose a product.	284(82,3)	21(6,1)
46.	I make sure that the websites I shop for are institutional and reliable.	291(84,4)	9(2,6)
47.	I note details of the websites I shop for (name, phone, address, price).	272(78,9)	27(7,8)
48.	I prefer to do a price search on the Internet before purchasing a product from digital platforms.	318(92,1)	6(1,7)
49.	I am aware of my rights about shopping I do/ will do in digital platforms.	315(91,3)	5(1,5)

This study found that students' perception profiles were quite varied on the statement items of the Digital Citizenship dimension. For the digital communication dimension, the majority (more than 90%) of students stated 'disagree' responding to negative statement items for sending pictures, photos, videos, or other information to other people who they do not know and they are feeling happy to share something they had to other people on social media (Facebook, twitter, whatsapp).

For the Digital Rights and Responsibilities dimension, the majority of prospective teacher students (more than 90%) stated 'agree'" responding to positive statement items "*will report situations or circumstances that I experience, know, and feel through social media to other parties or people I respect* " and '*reread the text that I will send the text that I send to other people*". For the critical thinking dimension, the majority of prospective teacher students (more than 80%) stated 'agree' in responding to positive statement items, "*sure that not all the information I received from friends and what was submitted digitally (online) is correct* and "shared." information to trusted friends.

For the digital participation dimension, the majority of student teacher candidates (above 80%) stated 'agree' in responding to the following positive statement items: *I exercise my rights to obtain correct information from (official) government agencies online.* For the Digital Security dimension, the perception of the majority of prospective teacher students (more than 87%) stated 'agree' responding to the following positive statement items: (1) *I can easily use digital devices (computers, smart phones, etc.) that I need*; (2) *I can easily access the information I need on the internet;* and (3) *I can download and use any application or program I need from the internet or digitally.*

For the Ethics dimension, the perception of the majority of prospective teacher students (more than 90%) stated 'agree' in responding to the following positive statement items: *I care about and respect the copyrights of others on the internet.* For the Digital Trade dimension, the majority of prospective teacher students (more than 90%) stated 'agree' in responding to the following positive statement items: (1) *I prefer to search or search for the price of an item before buying a product via the internet;* and (2) *I am aware of my rights when shopping and will shop on the internet.*

Students' perceptions of each dominant dimension—as found above, are in line with the concept of Digital Citizenship. According to Barnwell (2019), Digital citizenship is the ability to use technology and social media in a safe, responsible, critical, productive, and ethical (civilized) manner. A broader understanding, digital citizenship is; (1) positive competence and engagement with digital technology (creating, working, sharing, socializing, investigating, playing, communicating, and learning); (2) participate actively and responsibly (values, skills, attitudes, knowledge) in a community (local, national, and global) at all levels (political, economic, social, cultural and intercultural); and (3) engage in lifelong learning processes (formal, informal, and non-formal) and sustainably maintain human dignity. Digital

citizenship is often referred to as cyber citizenship, electronic citizenship, or online citizenship (Ribble, 2004; Richardson & Milovidov, 2019; Buckingham; 2010).

Mardianto (2018) explained that Digital citizenship can be grouped into three aspects of individual psychological competence, namely:

a. *Being online* is the ability and skills of teenagers or students in using ICT as an online medium, both related to technical skills, such as domains, access and inclusion capabilities, namely to access and use, as well as psychological skills consisting of domains;, , learning and creativity, the ability to learn and master creativity online, as well as media and information literacy. Basic functional and digital literacy skills are the ability to access, read, write, input, and upload information, publish, participate in polls, or express oneself in a different way. which allows them to be digitally engaged in their community.

b. *Wellbeing online* is a psychological condition, especially related to the emotional intelligence of individuals or adolescents who use online media, consisting of the domains; ethics and empathy, the extent to which adolescents have norms and codes of ethics and have the ability to empathize with fellow online media users. Health and wellbeing, e-presence, the use of ICT that is healthy and prosperous psychologically and in communication, namely the ability to engage in positive interpersonal communication.

c. *Rights online*, namely having the rights and responsibilities in using online media, especially those that are; active participation, the ability to actively participate: rights and responsibilities, free and responsible; privacy and security, namely having a privacy space and for the sake of online safety and comfort; consumer awareness, awareness that all online behavior is public consumption, so students or teenagers must be careful in responding to public problems, and every teenager's online behavior will be evaluated by the public.

According to Anderson (2018), there are two additional dimensions that need to be included in the digital citizenship curriculum, namely; digital law and digital health. Digital law is about how legal technology is used by members of society.Online crime, which is common with offline crime—such as; theft, damage to property, and defamatory slander, etc. The online behavior of teenagers or students above shows that there are still many of our teenagers who are not aware and understand the impact and legal consequences of their actions in cyberspace, both positive law and social law. Therefore, the problem of teenagers or students should be a priority, both school parents (teachers) and the community in general, assistance and guidance need to be given to teenagers or students so that they can use social media properly, healthily and responsibly. This indicates the need to introduce and teach students about digital law. For example, in the ITE Law, it is stated that anyone who knowingly distributes, transmits, and/or creates content that has contents that violate decency that can be accessed electronically can be charged with this law. The threat for the charge of decency is to be sentenced to a maximum of 6 years and/or a maximum fine of 1 billion rupiahs. In this way, it is hoped that they will be encouraged to uphold the law in their daily digital activities.

In addition to digital law, another dimension that is also considered important is digital health. Anderson (2018) emphasized that things that need to be considered in the use of digital machines (for example; computers and cellphones) are eye safety or health, and prevention of internet addiction. Students (students) need to be reminded to take care of their own physical and psychological health when they are involved with the internet for too long. A 2016 survey by the Global Web Index showed that the average person spends two hours each day just browsing social media. In fact, too much use of social media is not good for health.

There are five negative impacts of social media on the health of adolescents or students (Kompas, 16 th November, 2020), as follows. *First*, anxiety. Most teens experience pressure to write something perfect, upload the best pictures, and reply right away when there is one. *Second*, lack of sleep. The use of social media can affect adolescent sleep patterns. Teenagers have the urge to wake up in the middle of the night to find out what their friends have posted. This behavior makes teens sleep deprived and can ultimately affect mood swings.

Third, cyberbullying. The majority of teenagers have been victims of cyberbullying or cyber bullying. Bullies usually use technology, in this case social media, to harass, insult, and other negative things to victims. Teenagers who are victims of cyberbullying tend to experience depression, anxiety, and even have suicidal thoughts. *Fourth*, envy. On social media, many people show the best side of themselves. Very few are willing to show distress or anything else that demeans him. When someone presents himself very well on the internet, it gives the impression that his life is more interesting than other people's. *Fifth*, lack of communication Although social media is a place to interact with other people, but of course it feels different from communicating directly. Unfortunately teenagers are so busy looking at their phones all the time. As a result, they forget that there is a social life outside of cell phones. This makes them able to interact on social media, but lack communication with other people in real life.

The students' perception profile found in this study is also in line with the research of Martin et al. (2020). This study involved 237 high school students and found that amount of 55.3% of respondents stated that their parents controlled their use of social media, and only 37.1% stated that social media was taught in schools. The amount of 59.7% of students gave passwords to their friends and 48.5% added their friends and other people they did not know. They suggest that students who do not understand digital citizenship practices have implications for the need for teaching by teachers at school and parents at home.Several cases of violence or verbal aggression on the internet are generally carried out by teenagers, both students and college students. Research conducted by Daugird et al.(2015) as cited Mardianto (2019), confirms that a post of intolerance and bigotry made by a student at an American college on his social media account makes his fellow students and educators feel annoyed and regretted the action.

So, it is important to introduce and practice learning about digital citizenship education to teenagers and students. Regarding the importance of teaching prospective teachers about digital citizenship in schools, Kansu & Oksüz (2019) emphasize that prospective teachers (pre-service) need to understand correctly about digital citizenship learning practices and their dimensions while studying in college. They emphasized that teacher candidates (class teachers) play an important role in the training of students. Therefore, prospective teachers need to be trained on the knowledge, skills, and values of digital citizenship before they provide learning services in schools (Nina, 2019; Smukhija, 2020). It is believed that broad learning interventions in schools are effective in increasing student awareness about digital citizenship.

3.2 Differences in Students' Perceptions of Digital Citizenship in Terms of Several Factors

3.2.1 In Terms of Gender

Data analysis to examine differences in the level of student perceptions of digital citizenship in terms of several factors of student gender using independent t-test and the results are presented in Table 2.

Table 2. Results of Perception-Difference Test in terms of Gender

No.	Dimension	Mean		***t***	***sig***
		Female (*n=262*)	Male (*n= 83*)		
1	Digital Communication	19,64	19,11	1,647	0,101
2	Rights and Responsibility	33,11	32,57	1,312	0,191
3	Critical Thinking	24,83	24,84	-0,041	0,968
4	Digital Participation	17,80	18,02	-0,640	0,522
5	Digital Security	39,49	39,11	0,754	0,451
6	Ethics	13,57	13,73	-0,809	0,419
7	Digital Trade	27,81	27,11	1,699	0,090
	TOTAL	176,25	174,50	1,188	0,236

Table 2 shows that the significance or probability (p) of the test results is different for each dimension/aspect of digital citizenship and the total value is greater than $\alpha = 0.05$ ($p > \alpha$). Thus, Ho is accepted. It can be concluded that there is no significant difference in the perception of prospective teacher students about digital citizenship in terms of gender (female and male). In other words, female teacher candidates have the same perception about digital citizenship as male teacher prospective students. The research findings are in accordance with the research of Smukhija (2020) which concluded that gender (gender) does not have an important role in online behavior.

However, the findings of this study contradict some previous findings. Ata et al.(2018) in Turkey, for example, concluded that there was a significant difference in Digital Citizenship scores between male and female teacher candidates. Male teacher candidates showed higher scores than female teacher candidates. However, the findings of Ata & Yildirim (2019)'s research contradict the research of Kansu and Oksüz (2019) which concluded that the level of Digital Citizenship perception of female students was higher than that of male students. According to them, this difference is because female students are more sensitive in recognizing and practicing digital rules and laws and can pay more attention to digital health issues than males.

The discussion about the different levels of student perception related to digital citizenship above strengthens our understanding that in fact research conclusions related to gender and the dependent variables in education (learning outcomes, attitudes, critical thinking skills, metacognitive abilities, etc.) are still necessary or great opportunity to be debated (debatable). It is necessary to consider external and internal factors (motivation, talent, environment) when discussing research findings related to gender.

3.2.2 In terms of Educational Background or Study Program

Data analysis to examine differences in the level of student perceptions of digital citizenship in terms of educational background factors (science, mathematics, non-science, and language) using one-way ANOVA (f-test) and the results are presented in table 3

Table 3. Results of Student Perceptions of Different Tests in terms of Study Programs

No	Dimension	Mean				***F***	*sig*
		Science (*n=67*)	Math (*n=57*)	Non-Science (*n=129*)	Language (*n=92*)		
1	Digital Communication	19,49	19,63	19,40	19,49	0,109	0,955
2	Rights and Responsibility	33,31	32,68	33,02	32,82	0,483	0,694
3	Critical Thinking	33,31	32,68	33,02	32,82	0,483	0,694
4	Digital Participation	18,31	16,95	17,98	17,92	2,841	**0,038***
5	Digital Security	40,22	38,42	39,51	38,91	3,000	**0,031***
6	Ethics	13,67	13,42	13,70	13,48	0,595	0,619
7	Digital Trade	27,81	26,98	27,86	27,51	1,086	0,355
	TOTAL	186,13	180,77	184,49	182,95	2,111	0,099

significant at α = 0,05

Table 3 shows that the significance (sig) or probability (p) of the test results is different for each dimension/aspect of digital citizenship—*except for the dimensions of digital participation and digital security*—and the total value is greater than $\alpha = 0.05$ ($p > \alpha$). thus, Ho is accepted. It can be concluded that there is no (significant) difference in the perception of prospective teacher students about digital citizenship in terms of educational background/ study program (science, mathematics, non-science, and language). In other words, prospective teachers for science, mathematics, non-science, and language have the same perception of digital citizenship.

Because the *F*-test shows that there are differences in student perceptions on the dimensions of digital participation and digital security—then the analysis needs to be continued with a *post hoc analysis* using *the Scheffe-test*. It is found that there is a significant difference in the perception of prospective teacher students about digital citizenship on the digital participation dimension between those with educational background/science and mathematics study programs. With other study programs, there is no significant difference. In other words, prospective science teachers have a higher perception of Digital citizenship on the digital participation dimension than students of mathematics study program. In addition, it can be concluded that there is a significant difference in the perception of prospective teacher students about digital citizenship on the digital security dimension between those with an educational background of science and mathematics. With other study programs, there is no significant difference. In other words, prospective science teacher students have a higher perception of digital citizenship on the digital security dimension than students of mathematics study program.

3.2.3 In terms of Geographical Characteristic of Residence

Data analysis to examine differences in the level of students' perceptions of digital citizenship in terms of the geographical characteristic of residence using one-way (*F-test*) and the results are presented in Table 4.

Table 4. Results of Student Perceptions of Different Tests in terms of Geographical Characteristic of Residence

No.	Dimension	Mean			***F***	*sig*
		Village (*n=239*)	District (*n=56*)	Sub-District (*n=50*)		
1	Digital Communication	19,55	19,45	19,54	0,037	0,964
2	Rights and Responsibility	32,96	33,68	32,42	2,132	0,120
3	Critical Thinking	24,78	25,14	24,78	0,518	0,596
4	Digital Participation	17,75	18,43	17,82	1,379	0,253
5	Digital Security	39,02	40,68	39,24	4,676	**0,010***
6	Ethics	13,49	13,84	13,90	1,977	0,140
7	Digital Trade	27,63	27,89	27,50	0,210	0,811
	TOTAL	175,17	179,11	175,20	3,030	0,050*

significant at α = 0,05

Table 4 shows that the significance (sig) or probability (p) of the test results is different for each dimension of digital citizenship—*except for the digital security dimension*—the value is greater than $\alpha = 0.05$ ($p > \alpha$). Thus, Ho is accepted. It can be concluded that there is no significant difference in the perception of prospective teacher about digital citizenship in terms of the geographical characteristic of residence (village, district, sub-district). In other words, teacher candidates from villages, districts, and sub-districts have the same perception about digital citizenship.

Because the *F*-test shows that there are differences in student perceptions on the dimensions of security digital, then the analysis needs to be continued with a *post hoc analysis* using *the Scheffe-test*. It is found that there is a significant difference in the perception of prospective teacher students about digital citizenship on the digital security dimension between students who live in villages and those who live in district. In other words, teacher candidates who come from district have a higher perception of digital citizenship on the digital security dimension than students who live in villages.

This finding is also in line with Hasanah's research (2014) which concluded that the area of residence of students and student learning facilities have an effect on academic achievement with relative contributions of 10.23% and 20.10% respectively. Lande's research (2020) concluded that in attending e-learning lectures during the covid-19 pandemic, students who live in villages prefer to use the Whatsapp group application. There are some students who prefer that Zoom is easier because the network supports it. because it is not complicated, unlike other applications, it must be networked. Regarding digital citizenship, Kansu & Oksüz (2019) suggest that learning practices need to be linked to education since elementary school and developed in elementary schools located in remote areas (in rural primary schools). Regular meetings need to be held between stakeholders and the results need to be conveyed to prospective teachers.

With the advancement of social media tools (computers, handphones) and internet networks that are available and getting better from urban areas to remote villages, the level of perception of digital citizenship for each dimension is believed to be not significantly different between students who come from cities (urban), district, sub-district, and from the village (rural). This analysis is considered quite reasonable. It is undeniable that the use of social media brings so many conveniences for its users. With all the facilities provided by social media, social media can make it easier for users to carry out all their activities ranging from playing online games or offline games, and can also be used for social and business things. Various access to information and entertainment from various corners of the world can be accessed through one door only. Social media that is connected to the internet can penetrate the boundaries of the dimensions of life, space and time of its users, so that social media can be used by anyone, anytime, and anywhere.

4. Conclusion

This study concludes that teacher candidates' perceptions of digital citizenship in West kalimantan are quite varied. In general, the dominant students' perception is in line with the concept of digital citizenship. Prospective teachers need to be trained on the knowledge, skills, and values of digital citizenship before they provide learning services in schools. It is believed that broad learning interventions in schools are effective in increasing students' awareness about digital citizenship. To increase the reliability of the research, the application of the survey method with a cross-sectional study, involving respondents at the elementary, junior high, and high school levels simultaneously needs to be done. With this kind of research, it is believed that learning practices in schools and the digital citizenship curriculum can be developed more explicitly and in accordance with the needs of society in today's digital era.

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