The Digital Divide and Citizens' Perceptions of Government Responsiveness: A Case Study of Udon Thani Municipality, Thailand
ช่องว่างทางดิจิทัลกับการรับรู้ของประชาชนเกี่ยวกับการตอบสนองของภาครัฐ: กรณีศึกษาเทศบาลนครอุดรธานี

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Abstract

Globally, digital technology is indispensable to people's daily life. Since the 1990s, the Thai government has attempted to use digital technology as a tool for national and local government administration and public services. Literature advises additional research on the digital divide, particularly on the effects of the digital divide on public views of government responsiveness. This study seeks to address the question, "How does the extent to which citizens have access to and utilize digital technologies influence their perceptions of government responsiveness?" This research focuses on the residents of Udon Thani Municipality, one of the major cities in Thailand. The researchers employ a quantitative research method, collect data by surveying the opinions of 130 individuals using questionnaires, and then use multiple linear regression analysis to determine the relationship between citizens' perceptions of the responsiveness of the Udon Thani Municipality and digital capacity, as well as other personal characteristics. The results demonstrate that citizens' access to and benefit from digital technology affects their perceptions of government responsiveness. Marital status and age are found to be also correlated with perceptions of government responsiveness. These insights underscore the importance of incorporating digital inclusivity in policy strategies to foster an environment where all citizens feel heard and served by their government. Recommendations are also provided regarding the supply and delivery of urban public services through digital technology during a transitional era in which people's access to and utilization of digital technology continues to vary.

Keywords: Digital Government, Digital Technology, External Efficacy, Political Efficacy, The Digital Divide

บทคัดย่อ

เทคโนโลยีดิจิทัลเป็นสิ่งที่ขาดไม่ได้ในชีวิตประจำวันของผู้คนทั่วโลก นับตั้งแต่ทศวรรษ 1990 รัฐบาลไทยได้พยายามที่จะใช้เทคโนโลยีดิจิทัลเป็นเครื่องมือในการบริหารราชการและบริการสาธารณะทั้งในระดับประเทศและระดับท้องถิ่น งานวิจัยในระยะที่ผ่านมาชี้ให้เห็นว่าควรมีการวิจัยเพิ่มเติมเกี่ยวกับความช่องว่างทางดิจิทัล โดยเฉพาะอย่างยิ่งในเรื่องผลกระทบของช่องว่างทางดิจิทัลต่อความคิดเห็นของประชาชนเกี่ยวกับการตอบสนองของหน่วยงานภาครัฐ การวิจัยนี้มุ่งตอบคำถามที่ว่า “ระดับความสามารถในเข้าถึงและใช้เทคโนโลยีดิจิทัลของประชาชนมีผลต่อการรับรู้เกี่ยวกับการตอบสนองของภาครัฐอย่างไร” การวิจัยนี้ศึกษาเฉพาะผู้อยู่อาศัยในเขตเทศบาลเมืองอุดรธานีซึ่งเป็นเขตเมืองที่ใหญ่ที่สุดแห่งหนึ่งของประเทศ ผู้วิจัยใช้ระเบียบวิธีวิจัยเชิงปริมาณ โดยรวบรวมข้อมูลโดยการสำรวจความคิดเห็นของบุคคลจำนวน 130 คนโดยใช้แบบสอบถาม วิเคราะห์ข้อมูลด้วยวิธีการถดถอยพหุคูณเพื่อกำหนดความสัมพันธ์ระหว่างการรับรู้ของประชาชนต่อการตอบสนองของเทศบาลนครอุดรธานีกับระดับความสามารถทางดิจิทัล รวมถึงคุณลักษณะส่วนบุคคลอื่น ๆ ผลการวิจัยแสดงให้เห็นว่าการเข้าถึงและได้รับประโยชน์จากเทคโนโลยีดิจิทัลของประชาชนส่งผลต่อการรับรู้ของประชาชนเกี่ยวกับการตอบสนองของภาครัฐ นอกจากนั้น สถานภาพสมรสและอายุยังมีความสัมพันธ์กับการรับรู้ของประชาชนเกี่ยวกับการตอบสนองของภาครัฐด้วย ผลการวิจัยดังกล่าวสะท้อนให้เห็นถึงความสำคัญในการกำหนดยุทธศาสตร์เพื่อลดช่องว่างทางดิจิทัลและเสริมสร้างสภาพแวดล้อมที่เอื้อให้องค์กรปกครองส่วนท้องถิ่นรับฟังเสียงของประชาชนได้ดียิ่งขึ้น งานวิจัยนี้มีข้อเสนอแนะเกี่ยวกับการจัดทำและส่งมอบบริการสาธารณะในท้องถิ่นผ่านเทคโนโลยีดิจิทัลในยุคเปลี่ยนผ่าน ที่การเข้าถึงและการใช้ประโยชน์จากเทคโนโลยีดิจิทัลของประชาชนยังคงมีความแตกต่างกันอย่างมาก

คำสำคัญ: การมีประสิทธิภาพทางการเมือง, การมีประสิทธิภาพภายนอก, ช่องว่างทางดิจิทัล, เทคโนโลยีดิจิทัล, รัฐบาลดิจิทัล

Introduction

In the past few decades, the digital divide has emerged as a significant barrier to accessing and utilizing information and communication technologies (ICTs) across various populations, both in developed and developing countries. The digital divide refers to the gap between those who have access to and use of digital technologies, such as the internet, and those who do not (Van Dijk, 2019). As governments around the world increasingly provide public services online, the digital divide can have important implications for citizens' perception of government responsiveness, trust in government, and satisfaction with government services. Despite efforts to bridge this divide, disparities in access and usage persist across various dimensions, such as socioeconomic status, race/ethnicity, and geographic location (Robinson, Cotten, Ono, Quan-Haase, Mesch, Chen, ... & Stern, 2015).

One potential consequence of the digital divide is its impact on citizens' perception of government responsiveness. As governments increasingly use digital technologies to deliver services, communicate with citizens, and collect feedback, those who lack access to or familiarity with these technologies may feel excluded or marginalized from the political process (Smith & Anderson, 2017).

Previous research has found some positive relationship between media consumption and citizen's perception of government responsiveness. Kenski and Stroud (2006) examined the associations between Internet access, online exposure to information about the presidential campaign, and political efficacy, knowledge, and participation. They found that internet access and online exposure to information about the presidential campaign were substantially associated with the political variables. Using survey data from 18 Latin American countries, Wagner, Gray, and Gainous (2017) found that consumption of digital information has a positive impact on citizen's perception of government responsiveness because the internet provides factual support for the belief that governments are responsive to citizen demands.

The aforementioned studies provide some intriguing findings regarding the relationships between digital media consumption and citizens' perceptions of government responsiveness. They did not, however, investigate the relationship between the digital divide and citizens' perceptions of government responsiveness. Nor did they employ a more inclusive definition of the digital divide, one that included not only the use and skills of digital devices, but also their benefits.

Thailand's digital divide reflects disparities in access to and use of information and communication technologies (Malisuwan, Kaewphanuekrungsri, & Milindavanij, 2016). This gap is most evident between urban areas, like Bangkok and Chiang Mai, and rural regions, particularly in the Northeast and the deep South. Economic disparities further accentuate this divide, with higher-income households having better access to digital devices and the internet (Setthasuravich, Sirikhan, & Kato, 2022). Another challenge is digital literacy; even when technology is accessible, a lack of understanding can hinder its effective use. The generational gap also plays a role, with older individuals typically less familiar with digital tools than younger generations. However,

the Thai government is actively working to bridge this gap. Initiatives like the "Thailand 4.0" model and the Village Broadband Internet project aim to transform and connect the nation digitally (Sangsuriyong, 2018). Tech companies and telecom providers are also stepping up with affordable services and digital literacy programs (McKenzie, Castellon, Willis-Grossmann, Landeros, Rooney, & Stewart, 2023). Addressing this digital divide is crucial for ensuring social equity, economic growth, and broad-based development in Thailand.

Udon Thani Municipality is one of the major urban areas in Thailand. It offers a valuable setting to study the country's digital divide. Its blend of urban and rural landscapes provides a direct comparison of technological access across different environments. In general, the northeastern region showcases economic contrasts, with urban wealth juxtaposed against rural poverty, making it an ideal ground to study economic influences on digital access. Additionally, the region distinct cultural and linguistic identity might affect the perception and adoption of digital technologies. Udon Thani experiences migration patterns to and from larger cities, which can shape the dissemination and acceptance of digital tools. The city's infrastructure growth, due to its strategic location near Laos and as a regional hub, offers insights into how such development impacts digital connectivity. Furthermore, Udon Thani's educational institutions play a role in promoting digital literacy (National Statistical Office, Udon Thani Province, 2023). Studying Udon Thani thus offers a comprehensive understanding of the myriad factors influencing Thailand's digital divide.

This study aims to address these gaps in the literature by examining the relationship between the digital divide and citizens' perception of government responsiveness in Udon Thani Municipality. Specifically, this study investigates the extent to which the digital divide affects Udon Thani Municipality citizens' perception of government responsiveness.

Research Objective

This study aims to examine the extent to which the digital divide affects citizens' perception of government responsiveness in Udon Thani Municipality.

Literature Review

The Digital Divide

The digital divide is a term used to describe the gap between those who have access to digital technologies and those who do not. It encompasses not only access to the internet but also access to digital devices such as computers and smartphones, as well as the ability to use these devices effectively. This divide has been a topic of concern since the widespread adoption of the internet in the 1990s, with researchers and policymakers recognizing the potential negative impacts of unequal access to digital technologies.

The digital divide can have far-reaching consequences, including unequal access to education, healthcare, and employment opportunities. As noted by Warschauer (2004), those who lack access to digital technologies are often at a disadvantage in terms of accessing information,

communicating with others, and participating in the digital economy. This can limit their opportunities for social and economic mobility, leading to further social inequalities.

Research has shown that the digital divide is not only a matter of access to technology, but also of the skills needed to use technology effectively. This concept, referred to as the "second-level digital divide," highlights the importance of digital literacy skills in today's society (Van Dijk, 2018; Hargittai, 2001). As noted by Van Dijk (2019), those who lack digital literacy skills are less likely to use digital technologies for educational, social, and economic purposes. This can perpetuate existing social inequalities and further widen the digital divide.

Efforts to address the digital divide have focused on a variety of approaches, including increasing access to technology in underserved areas, providing digital literacy training, and addressing the root causes of inequality through policy interventions. However, the effectiveness of these interventions varies depending on a range of factors, including the social, economic, and political context in which they are implemented (Steele, 2018; Robinson, Cotten, Ono, Quan-Haase, Mesch, Chen, ... & Stern 2015).

In conclusion, the digital divide is a complex and multifaceted issue that requires a comprehensive and nuanced approach to address. Efforts to increase access to digital technologies and promote digital literacy are important steps in narrowing the gap between those who have access to these technologies and those who do not.

Digital Capacity

Digital capacity extends beyond mere access to digital technologies, encompassing the ability to effectively utilize these tools for communication, information seeking, and participation in the digital economy. (Kastelli, Dimas, Stamopoulos, & Tsakanikas, 2022). It involves a combination of digital skills, literacy, and the availability of digital resources, positioning it as a critical determinant of an individual's or community's ability to benefit from the digital age.

Digital capacity is inherently multidimensional, integrating aspects such as technical proficiency, cognitive skills, and socio-emotional abilities that enable individuals to navigate digital environments. Scholars argue that understanding digital capacity requires a holistic view that considers not only the hardware and software but also the human element—skills and knowledge that empower users.

The literature reveals a strong correlation between digital capacity and the digital divide, suggesting that disparities in digital capacity contribute significantly to the widening gap between the digitally empowered and the digitally disenfranchised (Lybeck, Koiranen, & Koivula, 2023). This gap manifests not only in terms of access but also in the ability to participate fully in digital life, affecting everything from educational opportunities to access to government services.

Government Responsiveness

The theory of responsiveness is a political science concept that refers to the extent to which policymakers and political institutions respond to the demands and preferences of citizens (Grossman & Slough, 2022). At its core, responsiveness is based on the idea that democratic governments are accountable to their citizens and should reflect their needs and desires.

Responsiveness involves both representativeness and accountability. Representativeness refers to the extent to which policymakers reflect the preferences and interests of their constituents, while accountability refers to the ability of citizens to hold policymakers responsible for their actions.

Citizens' perception of government responsiveness is sometimes referred to as "external political efficacy" (Novikova & Lieberman, 2021; OECD, 2019; Bratton, 2012; Cho, 2010). It is the perception that individuals can demand government action or influence the government's actions. It indicates whether or not the political regime can meet the requirements of the populace. Consequently, external political efficacy is crucial to the legitimacy of a government's existence (OECD, 2021). People possess a high level of external political efficiency, and as a consequence, the government has the authority to govern further. However, if the public receives poor service from the government and government agencies, their external political efficacy is naturally diminished. And it can contribute to people's discontent with the government and diminish the government's legitimacy.

Research has shown that responsiveness is important for maintaining democratic legitimacy and promoting citizen engagement. Citizens are more likely to participate in the political process when they feel that their voices are being heard and that their preferences are being taken into account. Conversely, a lack of responsiveness can lead to citizen disengagement and disillusionment with the political system. Wagner, Gray, and Gainous (2017) found that digital media consumption has a positive relationship with citizens' perceptions of government responsiveness.

Efforts to increase responsiveness have included reforms such as campaign finance regulations, citizen initiatives and referenda, and the use of participatory budgeting. These reforms are intended to increase citizen engagement and hold policymakers accountable to their constituents.

In conclusion, the theory of responsiveness highlights the importance of democratic governments reflecting the needs and preferences of their citizens. Efforts to increase responsiveness can help to promote citizen engagement and maintain democratic legitimacy.

Conceptual Framework

In the current study, the authors employ the term "digital capacity" to refer to one's level of access to digital devices and the internet, proficiency with digital device use, and advantages received from the digital devices. Based on a broader definition of the digital divide, digital capacity encompasses the overall ability and readiness to engage with digital technologies effectively. It implies having the necessary resources, skills, and knowledge to leverage digital devices and technologies for various purposes, including communication, information access, education, productivity, and more. It also emphasizes the ability to make effective use of digital technologies to navigate the digital landscape, benefit from the advantages they offer, and participate actively in the digital society. Thus, the digital divide is the gap between those who have digital capacity and those who have not.

Figure 1 depicts the conceptual framework of the current study, which is based on the theories discussed above. The primary hypothesis is as follows:

H_1: Digital capacity positively impacts citizens' perceptions of government responsiveness. It is anticipated that other personal factors correlate with citizens' perceptions of government responsiveness.

For the control variables, the hypotheses are as follows:

H_2: Sex positively is associated with citizens' perceptions of government responsiveness.

H_3: Age positively is associated with citizens' perceptions of government responsiveness.

H_4: Marital status is associated with citizens' perceptions of government responsiveness.

H_5: Education level is associated with citizens' perceptions of government responsiveness.

H_6: Monthly Income is associated with citizens' perceptions of government responsiveness.

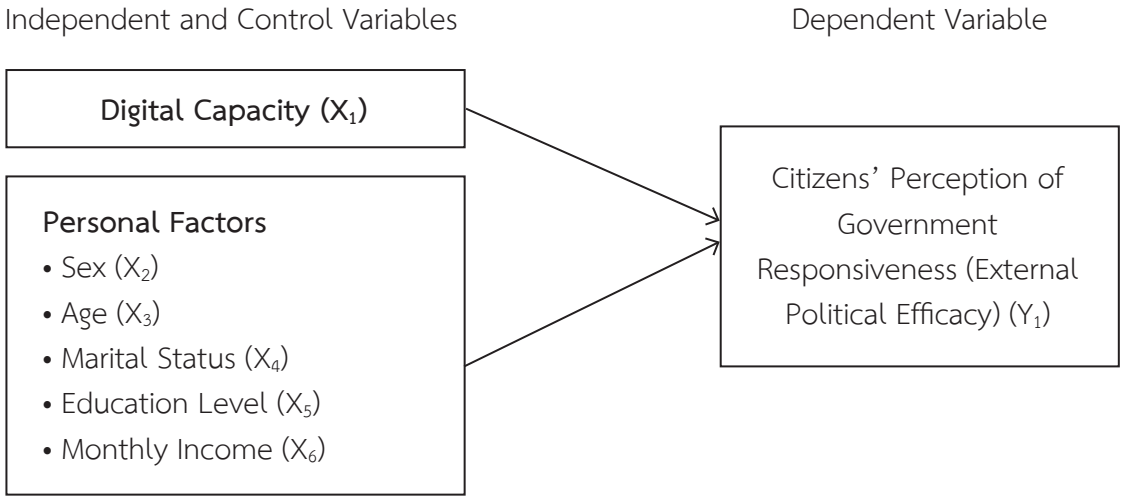

Figure 1 Conceptual Framework
From: This conceptual framework was developed by authors.

Research Methodology

To test the hypotheses, the authors used a survey design. The research location is Udon Thani Municipality, which is one of Thailand's largest urban municipalities in terms of population and local revenue. Not only do its citizens have a higher degree of internet connection than the national average, but Udon Thani also offers a diverse set of urban difficulties (National Statistical Office, Udon Thani Province, 2023).

The population of this study is 130,500 residents of Udon Thani Municipality. The sample size was determined by calculations in G*Power software. The authors used a multi-stage sampling procedure, yielding a total of 130 responses. Initially, Udon Thani Municipality was segmented into different areas based on urban and rural classifications. A random sampling technique was then employed within each segment to select respondents, aiming for a demographically representative sample.

Research Instrument

The authors collected data using questionnaires in April 2023. To ensure a comprehensive understanding of the digital divide's impact on government responsiveness, the study employed a meticulously developed structured questionnaire. The questionnaire was designed based on a review of relevant literature, focusing on key aspects of digital access, usage, and literacy. This design process involved consultations with experts in the fields of digital inclusion and public administration to refine the questionnaire's relevance and comprehensiveness. Three sections were included in each questionnaire. Section 1 consisted of inquiries about the respondents' general information, including gender, age, occupation, level of education, and residential community. Section 2 consisted of queries regarding access to digital devices and the internet, proficiency with digital device use, and advantages received from digital devices. Section 3 consisted of queries regarding the respondents' perceptions of Udon Thani Municipality's responsiveness. The queries in sections 2 and 3 utilize a six-point rating scale. Part 2 information was used to create an index for digital capacity. Part 3 data were used to construct an index of citizens' perceptions of government responsiveness.

Data Analysis

The authors analyzed the data by encoding the data from the questionnaires and inputting it into the computer system, then assessing the data's validity and processing it with Statistical Package for the Social Sciences (SPSS) version 28. The respondents' general information, the digital divide, and perceptions of Udon Thani Municipality responsiveness were described using descriptive statistics. The authors used Multiple Linear Regression to analyze the relationships between the independent and dependent variables for inferential statistics. The multiple linear regression equation is as follows:

$$y_i = \beta_0 + \beta_1 DC_i + \beta_2 SX_i + \beta_3 AG_i + \beta_4 xMS_i + \beta_5 EL_i + \beta_6 xMI_i + e_i$$

Where y_i is the level of perception of government responsiveness for the ith individual,
DC_i is the digital capacity,
SX_i is sex,
AG_i is age,
MS_i is marital status,
EL_i is education level,
MI_i is monthly income,
β_0 is the constant,
β_1 to β_6 are the coefficients for the respective variables,
e_i is the error term for the ith observation.

Research Findings

The analysis of data gathered from a survey of 130 individuals in Udon Thani Municipality, Thailand, reveals a number of intriguing findings regarding the digital divide and citizens'

perception of government responsiveness. The following findings emerged from an analysis of descriptive and inferential statistics.

The analysis of the sample's personal factors revealed that the majority of the sample consisted of females, with 72 individuals accounting for 55.38 percent. Age-wise, a total of 109 individuals, or 83.85 percent, were between the ages of 20 to 29 years old. In terms of marital status, 115 individuals, or 88.46 percent of the sample, were unmarried, constituting the plurality of the sample. Totaling 108 individuals, or 83.08 percent of the sample, the majority of the sample's educational background consisted of a bachelor's degree or less. The majority of the sample consisted of students, with 83 individuals representing 83.08 percent. The majority of the sample's income ranged between 15,000 to 30,000 baht, with 61 individuals representing 46.92 percent of the sample (Table 1).

Table 1 Demographic Information of Respondents

Personal Factors	Frequency	Percent
Sex		
Male	58	44.62
Female	72	55.38
Age		
18 - 20 years old	3	2.31
20 - 29 years old	109	83.85
30 - 39 years old	7	5.38
40 - 49 years old	3	2.31
50 - 59 years old	2	1.54
60 years old and over	6	4.62
Marital Status		
Single	115	88.46
Married	15	11.54
Education		
Under Primary School	2	1.54
Primary School	5	3.85
High School	2	1.54
Associate's Degree	1	0.77
Bachelor's Degree	108	83.08
Master's Degree	12	9.23
Monthly Income		
Less than 15000 baht	41	31.54
15000 - 30000 baht	61	46.92
30001 - 45000 baht	12	9.23
45001 - 60000 baht	8	6.15
60001 and over	8	6.15

Note: N = 130

The perceptions of Udon Thani Municipality's responsiveness among its constituents were gauged through an opinion survey. There were four perception-assessing queries: 1) Udon Thani City Municipality has given me the opportunity to express my opinions; 2) My ideas have influenced the decision-making, administration, and operations of the Udon Thani City Municipality; 3) Udon Thani City Municipality manages its work and provides services that meet my needs; and 4) Udon Thani City Municipality provides suggestions regarding its administration and operations. The scale consisted of six levels, with level 1 indicating strong disagreement and level 6 indicating strong agreement. The mean perception was 3.62 and the standard deviation was 1.28, which could explain why residents of Udon Thani Municipality perceived the responsiveness of the municipality to be relatively low (Table 2).

Table 2 Descriptive statistics

	N	Minimum	Maximum	$\overline{X}$	S.D.
Citizens' Perception of Government Responsiveness	130	1.00	6.00	3.62	1.28
Digital Capacity	130	1.00	6.00	5.82	0.70

A 6-level index was used to measure the level of digital capacity, with level 1 representing the lowest level of digital capacity and level 6 representing the maximum. The contents of the queries were divided into the following four categories: 1) access to digital devices and the Internet; 2) frequency of Internet use; 4) the nature of Internet use in daily life, including numerous applications; 4) the importance of the Internet to respondents. The study discovered that the average digital capacity of the people in Udon Thani Municipality was 5.82 and the standard deviation was 0.70, indicating that the digital capacity of the people in Udon Thani Municipality was extremely high.

A multiple regression analysis was computed to determine whether the level of digital capacity, sex, age, marital status, education level, occupation, and monthly income predict the level of perception of government responsiveness in a sample of 130 respondent (N = 130).

The equation for the regression line is the level of perception of government responsiveness = $b_0 + b_1$* digital capacity + b_2*sex + b_3*age + b_4* marital status + b_5* education level + b_6*monthly income. The R Square (R^2) of 0.127 indicates that 12.7% of the variance in the level of perception of government responsiveness is explained by the independent variables (Table 3).

The results of ANOVA were significant, F(6, 123) = 2.990, p = 0.009 (Table 4). Therefore, we must reject the null hypothesis that the slope of our regression line is zero. The level of digital capacity, age, and marital status significantly predict the level of happiness (Table 4).

Regression analysis to predict the relationship between the level of digital capacity and citizens' perception of government responsiveness revealed a 95% significant positive correlation (p-value = 0.032) between the level of digital capacity and citizens' perception of government

responsiveness (Table 5). The standardized coefficient of 0.272 indicates that if the level of digital capacity increases for one unit, the level of perception of government responsiveness will increase by 0.272 units.

Age had a statistically significant inverse relationship with citizens' perception of government responsiveness (p-value = 0.041). The standardized coefficient of -0.376 indicates that if the age group increases for one group, the level of perception of government responsiveness will decrease by 0.376 units. The relationship between marital status and citizens' perception of government responsiveness was found to be statistically significant (p-value = 0.014), demonstrating an inverse association. The standardized coefficient of -0.366 indicates that single individuals exhibit a lower level of perception of government responsiveness, decreasing by 0.366 units, than married individuals.

Table 3 Model summary of the multiple regression analysis

Model	R	R^2	Adjusted R^2	S.D.
1	0.3575a	0.127	0.085	1.22184

a. Predictors: (Constant), Income, Education, Sex, Occupation, Digital Divide, Status, Age

Table 4 ANOVAa of the multiple regression analysis

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	26.780	6	4.463	2.990	0.009[b]
	Residual	183.624	123	1.493		
	Total	210.404	129			

a. Dependent Variable: Response
b: predictors: (Constant), Income, Education, Sex, Occupation, Digital Divide, Status, Age

Table 5 Results of the multiple regression analysisa

	Unstandardized Coefficients		Standardized Coefficients	t	p-value
	B	Std. Error	Beta		
(Constant)	3.734	1.928		1.937	0.055
Digital Capacity	0.499	0.229	0.272	2.175*	0.032
Sex (Male)	0.257	0.223	0.100	1.153	0.251
Age	-0.490	0.238	-0.376	-2.062*	0.041
Status (Single)	-1.456	0.585	-0.366	-2.488*	0.014
Education	-0.119	0.159	-0.099	-0.747	0.456
Income	-0.009	0.113	-0.008	-0.079	0.937

a. Dependent Variable: Response
* $p < 0.05$

Discussion

The result indicates that citizens with a high level of digital capacity perceive Udon Thani Municipality to be highly responsive to their needs. This result may be attributable to the fact that digital capacity enables individuals to access a wide range of online information, including government websites, portals, and social media channels (Van Djik, 2019). They can locate information regarding government programs, policies, and initiatives with relative ease. This access to information can foster a perception of openness and transparency, resulting in a favorable perception of government responsiveness. In addition, individuals with high digital capacity can receive real-time updates, notifications, and alerts from the government regarding emergencies, public announcements, and policy changes through digital platforms. This timely influx of information contributes to a favorable perception of government responsiveness by fostering a sense of being informed and connected.

Age is correlated with citizens' perceptions of government responsiveness, as demonstrated by the above findings. Age is a prevalent factor identified in prior research. For instance, Kaguara and Wanjiru (2012) discovered that there was a substantial age gap between young individuals and adults. Older individuals, particularly those who are less familiar with or have limited access to digital technologies, may face challenges in navigating government websites, online services, or digital communication channels. The increasing reliance on digital platforms for government interactions can create a perception of exclusion and a lack of responsiveness for older individuals who may struggle to access information or engage with government representatives through these channels. Older individuals may prefer traditional communication methods such as in-person interactions, phone calls, or written correspondence. If government services primarily rely on digital communication channels or if there is a lack of accessible and user-friendly alternatives, it can create a sense of exclusion and a perception of government being unresponsive to their preferred means of communication. Older individuals may perceive a disconnect between their values, priorities, and the policies and services offered by the government. This generational gap can contribute to a perception that government decisions do not align with their needs and concerns, leading to a lower level of perceived responsiveness.

Another contribution of the current study is the discovery of a statistically significant correlation between marital status and citizens' perception of government responsiveness. Married individuals often have a partner with whom they can share their concerns, navigate bureaucratic processes, and seek assistance. This social support system can contribute to a more positive perception of government responsiveness, as they may feel more empowered and supported in dealing with government-related matters. Married individuals may perceive themselves as part of a family unit, and their concerns and interests may be more likely to be heard or considered by the government. They may have greater opportunities for representation and advocacy, both individually and as part of a family, which can contribute to a sense of being heard and a more positive perception of government responsiveness.

Conclusion and Recommendations

While this study provides valuable insights into the impact of the digital divide on perceptions of government responsiveness, it is important to recognize several limitations that might influence the interpretation and generalization of the findings. Firstly, the sample size of 130 respondents, though statistically sufficient, limits the ability to explore more nuanced aspects of the digital divide across different demographic segments. A larger and more diverse sample could reveal deeper insights into how various factors intersect to affect perceptions of government responsiveness.

Secondly, the study's geographic focus on Udon Thani Municipality, Thailand, while offering in-depth local understanding, may limit the applicability of the findings to other regions, especially those with different socio-economic conditions or levels of digital infrastructure development. Future research could benefit from comparative studies across multiple locations to understand regional variations in the digital divide's impact.

Additionally, the reliance on self-reported data through questionnaires can introduce biases, such as social desirability or recall biases, which might affect the accuracy of the responses. Employing a mixed-methods approach, including qualitative interviews or focus groups, could provide a more comprehensive view of citizens' perceptions and experiences.

Finally, the rapid pace of technological advancement and policy changes means that the digital divide is a moving target. This study provides a snapshot based on current conditions, but ongoing research is necessary to track changes over time and the effectiveness of interventions aimed at bridging the digital divide.

The authors have two recommendations for Udon Thani Municipality based on the above findings. First, policy communication that is currently being implemented or that will occur in the future via social media or other online channels must take into account the varying abilities of individuals to access digital technology, particularly those who are single, elderly, or have limited digital capacity. These three groups have a lower perception of the responsiveness of the government and may be misinformed by Udon Thani Municipality's communications. Second, Udon Thani Municipality must develop a strategic plan for more inclusive policy communication in order to reach diverse groups of people and to strengthen the policy communication competencies of local officials.

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