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TEST Engineering & Management magazine's purpose is to provide a forum for the exchange of state-of-the-art ideas and information among reliability/qualification testing professionals who perform physical and mechanical testing and/or environmental simulation. We specifically seek to inform and educate our subscribers through technically bylined articles written by those who work hands-on in the field, and through material generated by the editorial staff. We seek to deal with areas of the physical and mechanical testing and environmental simulation test industry that are emerging, controversial, not sufficiently understood, and/or little-discussed, some at a tutorial level. In addition, we channel news of the industry and offer discussions of state-of-the-art test equipment and techniques. We direct our publication to test engineers, managers, scientists, executives, consultants, educators, technical marketers, test technicians, and service engineers whose work relates to physical and mechanical testing and environmental simulation itself, or the production of equipment, instruments, and/or components for such testing.

**—Eve Mattingley-Hannigan
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Local Political Participation Model of the People in Choeng Neon Sub-District Municipality, Mueang District, Rayong Province

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Abstract

Digital literacy and digital lifestyle can directly affect the participation of individuals in the political affairs of the country and also affect economic performance. The main objective of this article is to identify the overall impact of digital literacy among citizens on the political participation of digital citizens in the province of Payong Thailand. The model of this research study also includes the mediating role of digital social life (DSL), digital political communication (DPC) and the digitalized acquisition information and data to evaluate the nature of political participation of digital citizens (PPDC). For this purpose, almost all the data and information were collected from about 413 individuals and citizens of Choeng Noen, Mueang district, Payong province Thailand. The given research study adopts an SEM technique and approach to validate the proposed theory and model of digital literacy and PPDC. The initial results and findings indicate that there is a significantly effective correlation between DL and PPDC in the context of the Payong province of Thailand. Furthermore, the findings of the current study also suggest that DSL and DPC positively and remarkably mediate the relationship between DL and PPDC. Besides, the findings of the current study also revealed that the digitalized acquisition of government data significantly mediates the association between DL and PPDC. The current research paper also discusses and mentions some significant implications and applications of DL, digital education, and the development of sustainable digital citizenship to evaluate the level of PPDC.

Keywords: Digital literacy, Digital education, Digital social life, Digital political communication, Digital acquisition, Digitalized acquisition of government information, Political participation of digital citizen.

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1. Introduction

For the past few years, there has been a recommence interest and absorption in digital education and adoption. Recent developments in the field of digital education and divided have led to an increase of studies and researches that reminds Thailand government officials to pay critical attention to the significant and invisible gap and limitation mainly between rural and urban areas of the country. During the last recent years,

in the field of digital education, Thailand's government institutions and authorities have significantly promoted digital education and information and digital literacy, thus using data and communication technology and technology use into learning and educational activities. In a wider concept, according to Nelson, Courier, and Joseph (2019), the main objective of digital education and learning process is to prepare citizens of the country to become digital citizens and play a part in the political activities of the

country. Recently, it is examined that in different sectors of Thailand, the political as well as local participation is very low and discourage able. Commonly, it is found that the common determinants of local participation are unknown, due to lack of participation. Thus, the lack of social participation in daily affairs affects the decisions of politics as well as the behavior of individuals.

ICT Index

	Country		Rank	IC Value
77	Dominica	5.69	69	5.76
78	Thailand	5.67	79	5.31
79	Ukraine	5.62	78	5.31
80	China	5.6	83	5.17

But with all the relevant aspects, these studies missed evaluating political awareness and political participation in the context of Thailand. Therefore the current study is very significant in describing the worth and value of political participation in social life and the steps to make it digitalized. The researcher has evaluated the fact and finds that political participation in developing digital literacy.



The local people will have easy access to literature, history, educational, and social entertainment available easily. Furthermore,

digital social life and the impact of digital political communication is an advanced step. There is a detailed study about the development advancements in Thailand but the current study evaluates the significance of the political participation in the local government to facilitate them with the latest technology of digitalization, access to common sectors to political information. The following study justifies that political participation in making social life digital has revolutionized in all walks of life.

- The foremost objective of the study is to identify the impact of digital literacy (DL) on political participation of digital citizen (PPDC)
- To identify the mediating role of digital social life in the relationship between digital literacy and PPDC
- To identify the mediating impact of digital political communication in the relationship between digital literacy and PPDC
- To identify the mediating impact of the digitalized acquisition of government information in the correlation between digital literacy and PPDC

The following study has very briefly identified the worth and importance of the digitalization of social life. The step taken by the political authorities to digitalize the social sector and easy access of all these walks of life and fields will help the common people of Thailand to access those sources and also this medium of digitalization will take the common life of the people and also meet the challenges of the competitive age. The research paper explains the significant step by the political authorities to digitalize the market. Education and also the government information, these steps can change the economy of the country. The step of making the social life digitalization has a vast scope and this will be an exemplary step universally .the researcher of the future time will find this study helpful as it opens the door of the vast world of

digitalization. The current research study consists of five chapters majorly including interlocation, literature review, study methodology, data analysis and interpretation and discussion, conclusion, and implications of the study. In the given study, the introduction chapter mainly consists of a background of the topic, problem statement, significance and scope, and justification of the study topic. The second chapter consists of an evaluation of recent studies on the current topic and concept.

2. Literature Review

2.1. Theory of Digital Literacy

Digital literacy (DL), from a theoretical point of view, is the combination of knowledge, capabilities, and skills to access digital data and information significantly, effectively, and ethically. According to this theory, digital literacy also includes knowing how to analyze and use digital data and information in decision making as well as in participating in political affairs. The theory of DL states that the availability of digital devices that are mainly used for digital communication can enhance the overall degree of digital literacy. An important aspect and point of this theory are that digital social life directly impacts the level DL which further influences the process of political participation of citizens. Citizens with a significant level of digital literacy able to understand the basics of digital technology and devices safely such as understanding basic features of digital technology and then participate in social as well as political issues.

2.2. Relationship between Digital literacy (DL) and political participation of digital citizen (PPDC)

Nelson et al. (2019) State that digital literacy is well defined as the means of communication obtain information, and the ability to send and receive the messaging or information required for a specific purpose. The current study has

deliberately described the DL has changed the meaning of literacy as it has become very easy for everyone to know, assess and conclude with the authentic results about an issue regarding their personal or the social life and the reasons for any act. The influence of the citizens after receiving DL and information about the social affairs and the issues happening in the society can be dealt with a close point of view and also the effects of such participation in decision making for the progress and the prosperity of the society and social life. The research paper evaluates that there is a positive relationship between DL and the political participation of digital citizens. Furthermore, the citizens of the digital community have a better sense of making a decision affecting the common people in the long term. There is a revolutionary change in the whole world after being digitalized, now the decision power of the common people have developed and they are connected with a large number of people on various platforms like Facebook, Twitter, Instagram are in contact to discuss and influence on the political issues and decisions all over the world Chan, Churchill, and Chiu (2017). The researcher has surveyed several people and the areas where the rate of DL has been increased and findings have shown a positive influence and relationship between DL and PPDC. Therefore, from the above discussion, the study proposes the following hypothesis,

H1: There is a significant relationship between DL and PPDC

2.3. The Mediating Role of Digital Social Life in the Relationship between DL and PPDC

A digital social life (DSL) is a life that a person and citizen lives mainly using digital technology and information technology to engage in society, political affairs, and sometimes government issues. As manifested by Snee, Hine, Morey, Roberts, and Watson (2016), the digital social life of a person is a life that person and individual live mainly by

using the internet regularly and significantly to involve in society as well as in political issues of the country. An important aspect of digital life is that individuals also have a comprehensive understanding and meaning of digital citizenship, which is the most suitable and responsible attitude when using digital technology and devices. A recent study by Beneito-Montagut, Begueria, and Cassián (2017), demonstrates that DS life incorporates all aspects of digital technologies like internet, android mobile devices which makes it easy for citizens to stay in touch with social friends and family which directly impacts the level of digital literacy of an individual. Digital life ensures social connectivity and enables individuals and citizens to communicate and take part in the political affairs of the country mainly by exchanging digital data such as video audio and images. Within the last few decades, certain positive and significant impacts of DSL on the political participation of digital citizens have changed significantly. This is because in the past few years the living standard of citizens has completely changed which mainly affects the degree of digital literacy among individuals and citizens and this positively influences the participation of digital citizens in the political affairs of the country. Therefore, the impact of digital life on digital literacy and political participation brings exceptional benefits and advantages in many aspects. So, based on the above empirical researches and policy indications, the study proposed the following hypothesis,

H2: Digital social life positively mediates the relationship between DL and PPDC

2.4. The Mediating Role of Digital Political Communication in the Relationship between DL and PPDC

Digital political communication (DPC) is a sub-field and area of communication and political aspects that are mainly referred to as how data and knowledge spreads, and influence politics and the

news media as well digital citizens. Since the development of WWW, the amount of information and knowledge to evaluate has exploded, and the analysts are moving to some significant computational techniques to evaluate the dynamics of DPC. In the past few years, network evaluation, machine learning and language processing (LP) have become significant techniques and tools to enhance the level of DPC and digital literacy of citizens. It mainly concerned with the development, procession, and the impacts of data, both through interpersonally as well as media, within a political setup and communication. A study by (Kreiss & McGregor, 2018) manifests that DPC is the analysis and evaluation of speeches by political persons and formal and informal communications between members of the citizens which directly impact on the political participation of digital citizens. This is mainly because media acts as a significant connector between the government and the citizens which enhances the digital literacy level of the citizens. According to a study by (Kattara & El-Said, 2015; Casero-Ripollés, 2017), DPC is the links and associations concerning politics and individuals and the connection types that connect these groups. Whether the association is developed by the types of persuasion and logos and this positively influences the overall process of political participation of citizens. Research by (Burgess & Bruns, 2018) manifests that social media has dramatically modified how modern political affairs are move and this also enhances the extent of digital literacy among citizens. With significant digital native citizens participating in the political affairs, social and digital media have mainly become significant platforms on which citizens develop themselves to connect with political affairs. Therefore, based on the above discussion, the research proposed the following hypothesis,

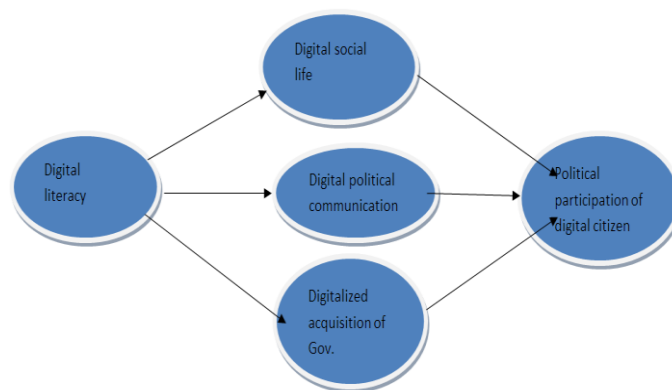
H3: Digital political communication significantly mediates the relationship between DL and PPDC

2.5. The Mediating Role of Digitalized Acquisition of Government Information in the Association between DL and PPDC

The digitalized acquisition is a modern process of getting information and data with ease of usability and reliability. Digital information and data are generally acceptable for individuals mainly because of readability and affordability. Digitalized acquisition of data and knowledge about government policies and rules is an electronic source for citizens which are one of the most significant sources for acquiring information. According to a study by (Gülsün' & Miç, 2019; Gottschalk, 2020) digitalized acquisition of information is an effective type of digital or electronic source for citizens to extract government information and data and then to use that data into other political aspects and to cross-search the different aspects of political affairs. Digitalized sources and technologies will allow citizens to approach the government officials and politicians to analyze its policies in a new and effective way and this directly enhances the political participation of citizens. Besides, the digitalized acquisition is a significant digital source that may contain a vast amount of data and government information, but more significantly the data and information may consist of mixed sources and media such as animation, images, and the video which further enhances the level of PPDC. Furthermore, digitalized acquisition of government information is a networked process that may provide citizens multi-access and sources at several points in time which positively influences the overall process and degree of digital literacy among citizens. Apart from the above certain contribution of digitalized acquisition of information may include; unlimited capabilities, convenience, and effective ways which positively influence the process of PPDC as well DL of citizens. A study by (Wang, Medaglia, & Zheng, 2018) manifests that because of simplicity and convenience digital acquisition of

information and critical data becomes very easy for a modern generation which significantly impacts the degree of digital literacy of citizens and due to this, the political participation of citizens was effected positively and effectively. The above mediating role of digitalized acquisition of information is mainly supported by the theory of digital literacy this is because DL is mainly enhanced by acquiring digital information and data from digital sources. Hence, from the above discussion and empirical pieces of evidence, the study proposes the following hypothesis,

H4: Digitalized acquisition of government information positively mediates the relationship between DL and PPDC.



3. Methodology

3.1. Data Collection and Sample

This study is carried out in Thailand to explore the connection between digitalization and local political participation of community. The political activities have great influence economical activities which brings some issues for business community as well. So to get insights of these issues a questionnaire based survey was instigated in Cheong Neon Sub- district of MUEANG District, data was collected from a sample established by purposive sampling consisting of 417 people. Census and statistic department of paying provided the details about the respondents. These respondents were invited to participate in survey through phone calls. 800 sets of

questionnaires were mailed to different addresses in this area, each set contained a copy of questionnaire and detailed description of the study objectives and requirements. Respondents were reacquired to mail the filled questionnaires to the mentioned address.

3.2. Measures

For evaluation of digital literacy two items were modified by incorporating Eshet (2004) framework to assess people ability to use and adapt information technology. One item is “Are you aware that your activity on the Internet or any public available information is recorded and traced?”. Respondents rated their digital literacy on a Five-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree) digital literacy verified reliability with 0.849 as Cronbach Alpha. Based on the findings of Chen, Liu, Hui, and Chung (2020), 3-items were chosen and reformed to amount digital social life of people to see the extent to which people interact with social media on different platforms .For example, “Did you search for any new information on the Internet in the last year? How often was it?” All the items were quantified on a Five-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree) showing $\alpha=0.815$.

Digital political communication measurements were adopted from scale Gil de Zúñiga, Weeks, and Ardèvol-Abreu (2017) to examine that either community use digital platforms to communicate with political institutes or not. For this purpose, 2 items were used sample item is “How often do you discuss societal or a political issue with friends online?”. Results showed Cronbach Alpha as 0.820.

Digitalized acquisition of government information was estimated by using 3 items after reviewing Boadway and Sato (1999) five items monitor the information digital acquisition of government. Example item is “Have you downloaded any

government-issued public records in the last year?” participants rated their views on Five point Likert scale as 1= very weak and 5= very strong. This construct indicated high reliability as its Composite reliability turned out 0.870.

The political participation of digital citizen is authenticated by using 10 items scale established by Dalton (2013) to indicate the degree of digital citizen participation. For example, “Have you ever expressed your opinion on public affairs on the Internet unofficially in the last year?” Responses were given on a 5 response scale ranged from 1= “never” and 5= “many times” Cronbach’s obtained by results was $\alpha=0.926$.

3.3. Data Analysis

Statistical analysis for data was conducted on AMOS and SPSS to examine the hypothesized relationship between variables Confirmatory factor analysis and descriptive statistics test were performed using AMOS to test the reliability and validity of measurements. Cronbach’s α and composite reliability (CR) were operated to check the reliability of the measurements that indicated good reliability.

4. Results and Analysis

Through purposive sampling total 413 community members across Cheong Neon Sub-district municipality in Thailand were included in sample frame to examine the role of digital participation in political participation of community. According to demographical analysis 228 members were male, and exactly 185 were female that’s shows rule of male, 31.0 % were aged less than 25 years of age, more 42.1% have age of 25 to 35 years and 23.3% are up to 35 to 45 years old only 3.9% have age above 45 years. In term of education 42.2 % have e

ducation of graduation level.

Table 1: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
DigitLiter	413	1.00	5.00	3.2458	1.08364	-.339	.120
DigSocLife	413	1.00	5.00	3.3115	.99259	-.336	.120
DigPolCom	413	1.00	5.00	3.2276	1.19272	-.210	.120
DigAcqGInf	413	1.00	5.00	3.5496	1.11961	-.432	.120
PPDigitCit	413	1.00	5.00	3.5765	1.14035	-.596	.120
Valid N (listwise)	413						

Descriptive statistics in table 1 is the summarize form of sample features and background. N in table presents the total observations, in our sample total 413 observations are included, all Minimum and maximum statistics are standardized and are under 1 and 5, so all variables are unrestricted from outlier so no variance. The mean for proposed constructs which are digital literacy, Digital social life, digital political communication, Digitalized acquisition of government information and political participation of digital citizen are as follow in order 3.2458, 3.3115, 3.2276, 3.5496 and 3.5765. 1st three variables mean is indicating 3 and last two shows 3.5 means, demonstrating mix tendency of neutral and agreed responses. To test the normality of data skewness values are considered, here these values are in range of -1+1 confirming normal distribution.

Table 2: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.936
Bartlett's Test of Sphericity	Approx. Chi-Square	8538.035
	df	190
	Sig.	.000

Table 2 containing of KMO and Bartlett's Test, confirms if sample suitability with research model. Kaiser-Meyer-Olkin Measure and Bartlett's Test of Sphericity reports .936 as adequacy scale that is in between the threshold values of 0.8 to 1 which authorizes sample adequacy. In Bartlett's Test of Sphericity The approximate of Chi-square is 8538.035 and 190 degree of freedom with significance level less than .05 which furthers prove that sample is useful.

Table 3: Rotated Component Matrix

	Component				
	1	2	3	4	5
DL1					.819
DL2					.884
SL1			.746		
SL2			.821		
SL3			.773		
PC1				.848	
PC2				.880	
AG1		.805			
AG2		.855			

AG3		.823			
DC1	.831				
DC2	.817				
DC3	.778				
DC4	.870				
DC5	.875				
DC6	.867				
DC7	.891				
DC8	.917				
DC9	.904				
DC10	.905				

Rotated Component Matrix is to check the accuracy of constructs association. In above table Factor loading for all constructs and items by Confirmatory factor analysis is illustrated. Factor loading of all 5 constructs is according to the rule of thumb which is that the factor loading must be above 0.7 and below 1 all the item's factor loading is fluctuating from 0.746 to 0.905 so data is valid and correlated with no cross loading bias.

Table 4: Convergent and Discriminant Validity

	CR	AVE	MSV	AG	DL	SL	PC	DC
AG	0.870	0.691	0.359	0.831				
DL	0.849	0.739	0.368	0.498	0.859			
SL	0.815	0.597	0.368	0.599	0.607	0.773		
PC	0.820	0.696	0.258	0.328	0.280	0.397	0.834	
DC	0.926	0.801	0.276	0.512	0.461	0.525	0.508	0.895

Confirmatory factor analysis was operated to figure out Convergent and discriminate validity to know about the relatedness and un-relatedness among different variable, it can be determined by checking composite reliability and Average

Variance Extracted and for individual variable. The political participation of digital citizen is most reliable construct as it has uppermost CR= 0.926 and contrary digital social life is least related construct due to lowest composite reliability= 0.815. Whereas, social life has least AVE which is 0.597 and political participation digital citizen records most variance as AVE is 0.801. CR values were greater than 0.7 and AVE was above 0.5,

Table 5: Model Fit Indices

CFA Indicators	CMIN/DF	GFI	IFI	CFI	RMSEA
Threshold Value	≤ 3	≥ 0.80	≥ 0.90	≥ 0.90	≤ 0.08
Observed Value	2.931	0.902	0.965	0.965	0.068

Table 5 exhibits Model Fit Indices. All constructed values are under threshold value ranges, like discrepancy function CMIN/DF = 2.931 which is less than or equal to 3, goodness of fit index GFI = 0.902 same or superior from .80 , comparative fit index CFI and incremental fit index IFI is . 0.965 surpassing 0.9 and RMSEA = 0.068 that is less than 0.8 which is a basically confirmation for model fitness.

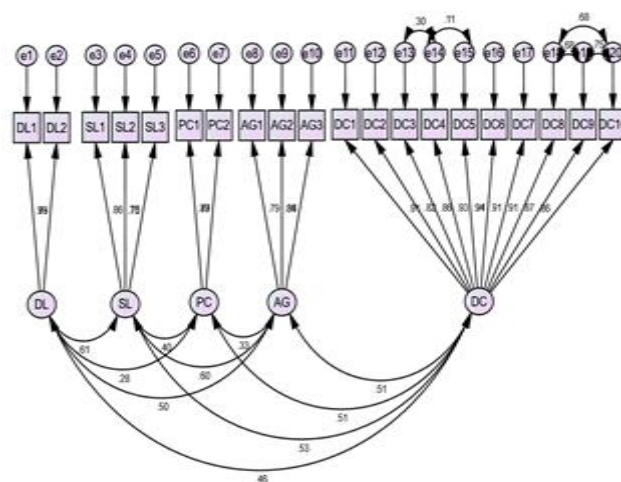


Figure 1. CFA

Table 6: Structural Equation Modeling

Total Effect	DigitLiter	DigAcqGInf	DigPolCom	DigSocLif
DigAcqGInf	.410**	.000	.000	.000
DigPolCom	.224**	.000	.000	.000
DigSocLif	.511**	.000	.000	.000
PPDigitCit	.432**	.226**	.312*	.156**
Direct Effect	DigitLiter	DigAcqGInf	DigPolCom	DigSocLif
DigAcqGInf	.410**	.000	.000	.000
DigPolCom	.224**	.000	.000	.000
DigSocLif	.511**	.000	.000	.000
PPDigitCit	.189**	.226**	.312*	.156**
Indirect Effect	DigitLiter	DigAcqGInf	DigPolCom	DigSocLif
DigAcqGInf	.000	.000	.000	.000
DigPolCom	.000	.000	.000	.000
DigSocLif	.000	.000	.000	.000
PPDigitCit	.242**	.000	.000	.000

Table 6 displays the structural equation modeling outcomes to check the relationship of hypothesis. From results it can be claimed that when digital literacy is increased by one unit it directly makes digital acquisition of government information to be increased by 41.0%, digital political communication with 22.4%, digital social life to

be added by 51.1%, political participation of digital citizen by 18.9% which make these hypotheses significant and lead to acceptance. If we look at Indirect effect, all moderators are significant and holds positive relationship with political participation of digital citizen's performance, as digital literacy through Digital social life, digital political communication and Digitalized acquisition of government information drives political participation of digital citizens by 24.2% which indicates that it has significant and indirect relationship, From the results of SEM we can draw a conclusion that all hypotheses of this study are significant.

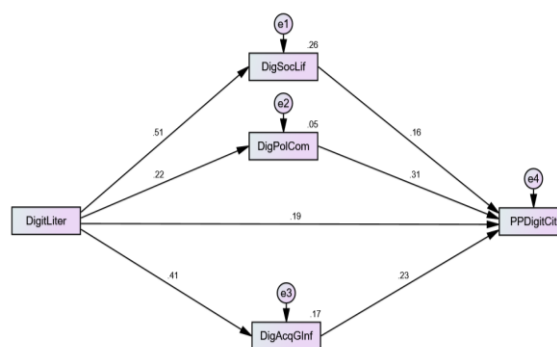


Figure 2. SEM

5. Discussion & Conclusion

5.1. Discussion

Due to the improving access to digital data and information as well as the promotion of digital learning, digital opportunity and ideas have become a basic concern in the discussion of national citizen policy and rules. The current study begins with the review and evaluation of digital literacy among the citizens and of Thailand and its impact on the overall participation of citizens in the political affairs of the country. The main concern and objective of this research study are to identify the overall impact of DL as well as the educational background of citizens on the participation level of citizens in the political affairs of the country along with the mediating

role of digital social life (DSL) and digital political communication (DPC). In the structural equation modeling (SEM) analysis, the study found that more educated citizens with a high degree of DL significantly involve and participate in the political affairs of the country. This is mainly because according to a study by (Yue, Nekmat, & Beta, 2019) it demonstrates that digitally literate citizens can significantly know how to generate, communicate and share digital political data and content and this enhances the level of participation in political affairs. Therefore, the hypothesis regarding the direct impact of DL on the PPDC has been accepted and also supported by the results of the study. Moreover, the findings of the study also indicate that DSL positively and favorably mediates the relationship between DL and PPDC. This is mainly because citizens with having modern and digital life can effectively and responsibly evaluate, identify, communicate, and share online data which positively enhances the DL and political participation of citizens Millard, Baldassar, and Wilding (2018). Hence, the hypothesis regarding the direct impact of the mediating impact of DSL in the correlation between DL and PPDC.

5.2. Conclusion

The given study concludes the fact that DL has a very strong impact on the social life of the common people to increase their awareness about political matters and social issues. The researcher is of the view that in the modern age everything is revolutionary. In the present era, life is very fast and the DL has a major role to cope with the challenges of time. The researcher has gathered information from the various sources of information and digital technology implemented and the outcomes of these technologies are very positive. This DL will impact more strongly than ever before.

5.3. Implications / Limitations and Future Recommendations

The given study has a very positive effect as digital Literacy has become a common topic for every individual in the world. Furthermore the result of the DL has a very strong influence on every individual either using high-frequency Digital literacy or just messaging and using the internet. This study is a very brief idea on how the DL is becoming an integral part of the life of every individual. The researcher has opened the various dimensions to discuss for future researchers and it is a guideline for the authorities who have not adopted the modern techniques to facilitate their people. The findings of the study have a very strong opinion that DL helps in increasing the awareness and also the participation of the local people.

Although this research makes some significant practical and theoretical implications and applications, some limitations are considered that connect to the model analysis and evaluation. First, the given research study mainly relied on a relatively small data sample due to the limited resources and control for background study items and variables. Therefore, due to this restriction and limitation, it is recommended for future studies that they should collect data from a large sample for more accurate findings.

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