Digital Demands: Addressing the Digital Divide in Basic Education and Its Relation to Academic Performance and Aspirations

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Abstract

Amidst an increasingly digitalized society, information and communication technologies (ICTs) have been seamlessly integrated into the economic, social, and political life of individuals. Information has been regarded as a primary good, essential to the wellbeing and self-respect of individuals in society. The digital engagements of an individual play a key role in a variety of life outcomes ranging from academic performance to labor market entry to health service uptake. However, as a result of varying degrees of access to the Internet and ICTs across populations and individuals, the Digital Divide emerges. Education, a sector pivotal to directing individual life trajectories, has been radically transformed with regard to access to information and the learning process, and thus faces the implications of the digital divide, as new waves of inequalities are introduced in the classroom. With the period of basic education being critical to transitioning into civic life or higher education, digital inequalities are capable of aggravating pre-existing social inequalities. Through survey-questionnaires, conducted on 152 high school students at the Ponciano Bernardo High School, the study reveals the correlation of academic performance and aspirations (for one's highest academic qualification in his or her lifetime) to access to digital technologies and the Internet, as measured through Van Dijk's four levels of digital access, namely: motivational access, material access, skills access, and usage access. The findings reveal a positive correlation for academic performance whereas no correlation was found between aspirations and digital access. Significant correlational differences were also revealed between genders, specifically, in terms of skills access and academic performance.

Keywords: digital divide, ICTs, technology, inequality

Introduction

The Digital Divide (Van Dijk, 2005) has become an increasingly common concept in the 21st century as information and communication technologies (ICTs) have become seamlessly integrated into the economic, social, and political life of individuals. The Internet has gained a foothold in the various sectors of human society including education, business, health care, and environmental management, among others. However, with the growing importance of ICTs and the Internet today, access to such resources remains varied across individuals and populations, leading to new forms of inequality, such as that of digital poverty.

Digital technologies have radically transformed the manner in which individuals acquire new information (Eamon, 2004), resulting in information- and knowledge-based societies. As such, the learning process has been significantly remodified by the new modes of meaning-making and knowledge acquisition brought about by the emergence of such technologies (New London Group, 1996). Consequently, the education sector has been radically transformed by the digital age in numerous ways.

Insofar as digital technologies have the capacity to transform all sectors of society, the effective use of such technologies by individuals has the capacity to alter one's life trajectories (Robinson, Cotten, Quan-Haase, Mesch, Chen, Schulz, Hale, & Stern, 2015). One's engagements with digital technologies may affect his or her life outcomes in terms of "educational advantages, future employment and earnings, opportunities for social and civic involvement" (Eamon, 2004).

The manner in which the digital divide affects the education sector serves as the focus of this study as it is critical that individuals are able to attain a self-efficacy in the use of digital technologies during their early formative stages in the formal educational setting (Li & Ranieri, 2013). As schools, the labor market, and the social life, increasingly require individuals to be digitally literate, those who lack access to ICTs and the self-efficacy to operate such may find it more difficult to become integrated into the digitally-mediated world.

Background

The Nationwide Digital Divide

As access to ICTs have been revealed to have the capacity to fast track national development (Robinson et al., 2015), efforts to increase Internet penetration in the Philippines have been expressed by both private and public sectors. Alongside a steady and comparatively high GDP growth rate in the country over the past 5 years (with an average of 6.28% from 2010-2014) (World Bank, 2015), there has been a significant rise in Internet penetration rate in the country.

From an initial rate of 9% in 2009, Internet penetration has leapfrogged to 40% in the year 2014 (World Bank, 2015). However, this still leaves roughly 60 million Filipinos without access to stable broadband Internet, making information a scarce resource to a majority of Filipino citizens to this day. The primary barrier to access to ICTs in the country is economic poverty (Asian Institute of Journalism and Communication, 2009). As individuals from lower socioeconomic backgrounds are less likely to be able to benefit from the use of such technologies increasingly necessitated in contemporary society, those in economic poverty are likely to be put at an even greater disadvantage in contrast to their digitally literate and economically privileged counterparts, who may be benefitting from the use of ICTs. With digital poverty aggravating pre-existing social inequalities (DiMaggio & Garip, 2012), the emerging forms of inequalities in the 21st century, or the so-called 'Digital Age', demand a place in the

agenda of any study of the reproduction of social inequality in any society where economic inequalities remain sharp.

Income Inequality and Educational Opportunities in the Philippines

As one of the emerging and developing countries, the Philippines has been reported to have the highest rate of social and economic inequality in the entire Southeast Asia, according to a report by the ASEAN Trade Union Council in 2011. A growing disparity between the country's rich and poor has been revealed to be directly linked to the inequality in educational and vocational opportunities of its population (De Gregorio, 2002). In addition to this, educational attainment has been revealed to be one of the main determinants of income in the Philippines, where income inequality has been directly linked to educational inequality (ibid.). According to a study conducted by the Philippine Institute for Development Studies (2015), "education correlates with living standards: practically nineteen out of twenty poor persons in 2009 belong to households where the heads have little or no schooling. Lack of education of the household head limits earning potentials of the household" (Albert, 2015).

In the Philippine context, educational inequality is most apparent between the costly private schools and free and often low-funded public education in the country, where economic poverty remains a primary barrier to accessing quality (private) education. In contrast to their private counterparts, a majority of public schools remain disadvantaged, as they are characterized by high teacher-student ratios, inadequate school infrastructure, scarce instructional resources (from traditional to digital), and a low degree of teacher training, among others. This has been found to be the result of lack of government funding and corruption (De Gregorio, 2002).

Students enrolled in public schools, who are more likely to come from lower socioeconomic backgrounds, are now at a disadvantage not only in terms of acquiring access to the traditional media associated with schooling (pencils, notebooks, books, etc.), but also the emerging media of the 21st century (computers, laptops, Internet), which are becoming integral not only to learning but also to one's overall sense of well-being. Inequality in access to digital media, hence, aggravates the existing divide in educational opportunities in contemporary society. This has implications for one's educational outcomes, which are heavily affected by the disparate learning conditions present in the Philippine educational landscape, compounded by one's ability (or inability) to gain access to learning resources, which now span across both traditional and digital media.

Access to ICTs and Educational Outcomes

Numerous studies suggest that one's engagements with ICTs may lead to a number of educational advantages. In an age driven by information and one's ability to process and manage this, it is essential that students develop the self-efficacy needed to operate information technologies. However, without access to the Internet at home, however, students may find it difficult to develop such (Jackson, von Eye, Biocca, Barbatsis, Zhao, Fitzgerald, 2006; Zhao, Lu, Huang, Wang, 2010). A study by Li and Ranieri (2013) reveals that students who fail to develop a self-efficacy in operating digital technologies are found to have lower self-esteem and confidence when compared to their peers. Likewise, one's access to digital technologies has been revealed to be directly correlated to one's academic performance (whether self-perceived or through their reported student GPAs) (Jackson, et al., 2006; Judge, Puckett, & Bell, 2006; Li & Ranieri, 2013; Wong, Ho, Chen, Gu, Zeng, 2015). Students with access to the Internet at home are more likely to have more confident attitudes towards their studies (Yelland & Neal, 2013)

and themselves (Li & Ranieri, 2013), as they are able to engage in a wider variety of social and educational activities made accessible by digital technologies.

A study conducted in Shanghai by Wong et al. (2015) reveals that high school students' access to a stable Internet connection at home is directly correlated to their aspirations for their highest educational attainment in their lifetime. Students with access to the Internet at home are more likely to choose a Masters or Doctorate degree as their aspired highest academic qualification in their lifetime, in contrast to their counterparts who are more likely to select High School or a College degree (ibid). This makes for an interesting focus of study in the Philippines, where lower educational qualifications have been revealed to be directly linked to economic poverty.

Hence, access to ICTs may potentially affect one's educational outcomes in a variety of ways. From improving academic performance to enhancing psychosocial attributes (confidence, self-esteem, and self-efficacy) to enabling individuals to have higher aspirations for their highest educational attainment in their lifetime, access to digital technologies may potentially play a significant role in directing one's life trajectory beginning with the experience of ICTs in their formative years of schooling.

Research Method

Operational Framework

In order to conduct a sound analysis of the digital divide, digital access must be regarded as an attribute that is multidimensional and unique to each individual. Though macro-level approaches provide us with a bigger picture of the Digital Divide primarily in terms of one's material access to the technology, this study is concerned with the micro-levels of digital access and how this may affect the learner. Moving beyond the binary notions of the 'haves' and 'have-nots' of digital technologies, Van Dijk (2005) offers a framework for measuring digital access in terms of four levels: (1) motivational access, (2) material access, (3) skills access, and (4) usage access. As adapted by the researchers, this framework serves as the basis for our analysis of the digital divide in the classroom setting. The four levels seek to answer the following questions respectively: Is the individual motivated to adapt the technology and what are the barriers to such? Does the individual have physical entry to or ownership of the technology? Does the individual have the skills necessary to operate the technology's hardware and software? In what ways does the individual make use of the technology?

Framing the Research Questions

Four main interconnected areas of concerns were taken into consideration by the researchers in the development of the research questions of this study. Firstly, educational opportunities in the Philippines are highly uneven as they are based on one's socioeconomic background, which is now further aggravated by the digital divide. Secondly, the relationship between digital access and educational outcomes within the Philippine sociocultural context has been meagerly explored. Thirdly, data on the digital divide in the country primarily make use of macro-level approaches (i.e. Internet penetration rates, ownership of various digital technologies, etc.), disregarding other essential levels of digital access (i.e. motivational access, skills access, and usage access), which may be necessary to create a more comprehensive picture of the divide across individuals or learners. Lastly, income inequality is found to be a direct cause of lower educational attainment of individuals in households.

Hence, the researchers have derived the following research question with respect to these four main areas of concern:

RQ_1: What is the landscape of the digital divide in a Philippine public school classroom with respect to motivational access, material access, skills access, and usage access?

RQ_2: What is the correlation between one's digital access to his or her academic performance in the classroom and aspirations for his or her highest academic qualification in his or her lifetime?

Instrument

The study is limited to a descriptive case study, as the researchers primarily sought to explore the nature of the digital divide within the classroom and how this may be correlated to one's academic performance and aspirations. Though digital divides exist across school populations, this study is concerned with the divide present among individuals within a school population. The study made use of mixed research methods and was conducted at the Ponciano Bernardo High School, a public high school located at Quezon City in Metro Manila. The main research tool consists of a survey-questionnaire that was distributed to the entire batch of Grade 10 students of the high school, with a total of 152 (48% males, 52% females) students participating in the study, mostly aged 15-16 (with a few outliers).

The questionnaire consisted of four main sections:
1. Basic Information – Name (optional), Age, Gender
2. Digital Access

Material Access – limited to the ownership of a computer or laptop; access to the Internet; alternative sites of access to computers or laptops
   a. Motivational Access – desire to adapt or acquire the technology; barriers to such technology
   b. Skills access – ability to perform basic tasks across four computer software (Web Browsers, Microsoft Word, Microsoft PowerPoint, and Microsoft Excel)
   c. Usage access – frequency of engagement across the following online activities: surfing the web, gaming, social networking, entertainment (video and audio streaming), and school-related purposes
 3) Academic Performance – GPA during the previous school year
 4) Aspirations – highest academic qualification aspired in one's lifetime

In designing the research tool, a focus group discussion was conducted with students from one of the top private high schools in Metro Manila, considered to be an "elite" school, to serve as a reference point for 'digitally wealthy' students, who were rated high on all four levels of digital access. The findings were then further supported and analyzed by qualitative research methods, in which interviews were conducted by the researchers with the school principal, administration, and personnel at the Ponciano Bernardo High School to provide more insight into the landscape of digital inequality present at within the sample.

The Digital Divide at The
Ponciano Bernardo High School

A. Material Access & Motivational Access

Approximately 48% (72) out of 152 students indicated physical ownership of a personal computer or laptop (henceforth to be referred to as students "with ownership" or "without ownership"). Out of the 72 students with ownership, 66 (92%) indicated they had access to a stable Internet connection at home, whether through Wi-Fi or cellular data. On the other hand, a majority of students who did not have ownership had limited access to these technologies primarily through Internet cafes (71%). Students without ownership indicated that the high cost of these technologies is the primary barrier to ownership of a personal computer or laptop (refer to Table 1).

Frequency Distribution of Student Responses for the Following:	Percentage
Physical Entry to The Technology	
Students with Ownership of Computers/Laptops	48%
Students with Ownership of Computers/Laptops with a Home Internet Connection	92%
Alternative Sites of Access of Students Without Ownership	
School Computers	10%
Internet Cafes	71%
Borrow from relatives or friends	17%
Does not use computers at all	2%
Motivational Barriers of Students without Ownership	
I don't want one	5%
I don't feel like I need one	16%
I don't have time for one	10%
It is too expensive	64%
I don't know how to use one	5%

Table 1. Material Access to Computers and the Internet, Motivational Barriers to Ownership

B. Skills Access

When asked to indicate their ability to perform various tasks on computer software (Web Browsers, Microsoft Word, Microsoft PowerPoint, and Microsoft Excel), weak positive correlations ($r=0.267$, 0.253, 0.218, 0.273, respectively) were found between ownership and skills access. However, gender plays a significant role in mediating this correlation, where male students were found to have moderate positive correlations ($r=0.389$, 0.331, 0.297, 0.389, respectively) between ownership and skills access, while no correlation ($r=0.131$, 0.129, 0.154, 0.131, respectively) was revealed for female students (refer to Table 2).

Software	Basic Skills Set	Correlation (r)		
		Sample	Male	Female
Web Browsers	1. Use search engine	0.266	0.394	0.064
	2. Download files	0.276	0.349	0.192
	3. Install software	0.191	0.352	0.050

		Sample	Male	Female
	4. Bookmark webpage	0.281	0.401	0.189
	5. Open new tab	0.281	0.408	0.128
	6. Stream videos and music	0.220	0.368	0.032
	7. Send emails	0.346	0.447	0.259
		0.267*	0.389*	0.131*
Microsoft Word	1. Create and save file	0.345	0.434	0.210
	2. Font, size, color, line spacing	0.220	0.328	0.097
	3. Cut, copy, paste	0.234	0.285	0.114
	4. Italicize, bold, underline	0.215	0.267	0.125
	5. Insert image	0.250	0.331	0.100
		0.253*	0.331*	0.129*
Microsoft PowerPoint	1. Create and save file	0.323	0.451	0.180
	2. Create and delete slide	0.281	0.389	0.152
	3. Change background	0.067	0.027	0.207
	4. Insert image	0.193	0.290	0.075
		0.218*	0.297*	0.154*
Microsoft Excel	1. Create and save file	0.320	0.348	0.309
	2. Create a table	0.368	0.423	0.309
	3. Add, subtract, multiply func.	0.121	0.321	-0.032
		0.273*	0.389*	0.131*

Table 2. Skills Access: Correlations Between Ownership and the Ability to Perform Basic Skills per Software. *Weighted averages calculated by transmuting Fisher's Z averages to Pearson's R coefficients

C. Usage Access

When asked to indicate their perceived frequency of engagement across various online activities through a 5-point Likert scale (never, rarely, often, sometimes, always), a strong positive correlation (r=4.66) was revealed between ownership and surfing websites of interest. However, no correlation (r=-0.014) was found between ownership and the students' perceived frequency of engagement with online gaming. Across the remaining online activities, entertainment, social networking, and school-related activities, weak positive correlations (r=0.269, 0.213, 0.257, respectively) were revealed. Gender appears to play no significant factor in mediating these overall correlations (refer to Table 3).

	Correlation (r)		
Online activities	Sample	Male	Female
Surfing Websites of Interest	0.466	0.445	0.466
Playing Online Games	-0.014	0.026	0.045
Entertainment (streaming music, videos)	0.269	0.221	0.278
Social Networking	0.213	0.171	0.228
School-Related Activities	0.257	0.214	0.260

Table 3. Usage Access: Correlation Between Ownership and the Frequency of Engagement Across the Following Online Activities When Using a Computer

D. Academic Performance and Aspirations

A strong positive correlation (r=0.309) was revealed between student ownership and their reported grade point averages (GPAs) for the previous school year, whereas no significant correlation (r=0.127) was found between ownership and their aspirations for their highest academic qualification in their lifetime. When asked to indicate their confidence in attaining this academic qualification, no correlation was found between ownership and reported confidence (r=-0.020). However, gender was revealed to be a significant factor in mediating the correlation between ownership and academic performance, where a strong positive correlation (r=0.457) was revealed for male students, while no correlation was found for female students (r=0.107). Gender was not found to influence the correlations existing between aspirations and confidence with ownership (refer to Table 4).

Variables	Correlation (r)		
	Sample	Male	Female
Academic Performance	0.309	0.457	0.107
Aspirations	0.127	0.080	0.143
Confidence	-0.020	-0.131	-0.020

Table 4. Correlation of Ownership with Academic Performance, Aspirations, and Confidence

Discussion

A significant digital divide exists across the Grade 10 student population at the Ponciano Bernardo High School, in which approximately only one in every two students have ownership of a personal computer or laptop as well as access to an Internet connection at home. Moving past the 'haves' and the 'have-nots' of the technologies, it is apparent that the digital divide manifests itself beyond the physical ownership of digital technologies. The succeeding sections seek to analyze the digital divide, in relation to the four levels of access and its implications for academic performance and aspirations. The divide is also explored with respect to the following relevant points of discussion that arose during the study: the spatial contexts for online pursuits in relation to learning, the extent to which the divide is mediated by gender, and the manner in which digital poverty may aggravate pre-existing inequalities in the classroom.

Academic Performance and Educational Outcomes

As numerous studies have suggested that one's access to information technologies and the Internet are critical to educational outcomes, it is apparent that students at the Ponciano Bernardo High School are no exemptions to this. Students who have ownership of a personal computer or laptop were found to have a reported grade point average of at least 2 points higher than their counterparts, as reflected by the moderate positive correlation revealed between ownership and academic performance.

In a majority of public schools in the Philippines, such as the Ponciano Bernardo High School, students are still faced with the lack of access to traditional learning resources. It is apparent, however, that those with ownership of their own personal computers or laptops are able to compensate for this by their virtually unlimited access to information technologies at home, offering them number of educational advantages as they are able to engage in activities that can further enhance and contribute to their learning. As discussed by Ito, Horst, Bittanti, Herr-Stephenson, Lange, Pascoe, and Robinson (2008), digital technologies are characterized by the

"convergence" of all pre-existing media resources (print, radio, television) with regard to the information they make readily available. This allows students with ownership of such resources to fulfill their information needs to a much greater extent than their disadvantaged counterparts, regardless of their possible lack of access to traditional media. This is further supported by the strong positive correlation existing between one's ownership of a personal computer and their perceived frequency of engagement of the online activity "surfing the Internet." Where learning and meaning-making occur as spatial and temporal activities (Kostogriz, 2006), being able to surf the Internet at any time allows for one to fulfill one's information needs beyond the traditional confines of the classroom, allowing for more opportunities for individualized learning at any time and place. This results in significant implications regarding the inequality in learning opportunities of the students, where a significant number still heavily rely on the limited, and often inadequate, offline information resources provided by the school.

Similarly, the general higher academic performance of those with ownership of computers or laptops may also be the result of the increased ability to operate and make use of computer software that are becoming increasingly necessary in the classroom. As these are currently being encouraged at the Ponciano Bernardo High School, submitting a printed-out school requirement (produced through a Word document) or delivering a presentation enhanced by various multimedia (such as that made possible by PowerPoint) may serve as a significant advantage for students in creating superior outputs. Maximizing one's use of the software is also further enriched by one's ability to navigate through limitless information and instructional resources made possible by one's access to the World Wide Web at home.

Aspirations and Life Trajectories

In contrast to the findings of Wong et al. (2015), no significant correlation was revealed between the students' aspirations for their highest educational qualification in their lifetime and their ownership of a personal computer or laptop. It may be noteworthy, however, that the indicated level of educational attainment aspired by both groups significantly contrasted with respect to their modes. Students with ownership most frequently selected the master's degree option (33.80%) whereas students without ownership were more likely to choose the vocational school option (35.14%) as their highest aspired academic qualification in their lifetime. Though no correlation was revealed between aspirations and ownership, the life trajectories of the learners may still be affected in a number of ways (Robinson et al., 2015). Educational outcomes, for example, which are critical to labor market entry as well as acceptance into higher educational institutions, have been reaffirmed in this study to be directly correlated to one's digital access.

The Importance of Space in Online Pursuits

Though students without ownership of a personal computer or laptop are able to access these technologies and the Internet primarily through Internet Cafes, educational outcomes (as reflected through their academic performance) are still revealed to be significantly affected by ownership. The researchers attribute this to two possible interrelated underlying reasons: (1) the degree to which the information technologies are made available to those with ownership is virtually unlimited in contrast to their counterparts and (2) one's pursuits for fulfilling learning needs are situated within spatial and social contexts in which learning occurs (Hassani, 2006; Kostogriz, 2006).

Looking into the sociocultural context in which these technologies are used in Internet Cafes may provide deeper insight into the digital divide and its implications for the students' academic performance. As students with ownership of computers or laptops perceived themselves to be more frequently engaged in all online activities except gaming, this finding suggests that students without ownership may primarily go to Internet Cafes for gaming purposes. This reflects the manner in which these technologies are likely to be used within this particular spatial context. In contrast, students who are able to access these technologies within other learning environments, such as at home, may associate these spaces not solely for gaming purposes, but for a variety of online pursuits. Additionally, students may explore other forms of leisure and recreation, complete school-related requirements or homework, or fulfill other informal learning needs through web browsing, which may contribute more to their overall learning and cognitive development.

Though material access to digital technologies is essential to reaping the information benefits made readily available by the Internet, the degree to which the information is used to enhance individual learning in relation to school-related activity and overall wellbeing is dependent on the spatiotemporal and social context in which learning pursuits are fulfilled. As emphasized by Hassani (2006, p. 265), "having access at home is a key factor that is strongly associated with applying the Internet toward ends that enhance individual wellbeing."

Gender as a Critical Determinant

Being cultural artefacts, technologies, and the manner in which they are used, are facilitated by sociocultural arrangements, such as gender roles and social expectations. Previous studies suggest that male students are more likely to engage with technical devices at a younger age, resulting in the greater ability to operate ICTs as they grow older (Van Dijk, 2005). This may likewise be the case within the Philippine sociocultural context, wherein males are more positioned culturally to engage with digital technologies and the Internet at a younger age. While the study revealed a significant positive correlation between ownership and academic performance, it must be noted that this correlation is heavily influenced by gender. While male students displayed a strong positive correlation between ownership and academic performance, no correlation existed for female students, reflecting a highly gender-based digital divide.

According to a study on Internet access and use by Filipino schoolchildren conducted in 2011 by the Asian Institute of Journalism and Communication (p. 16), "the Internet non-users are mostly female children enrolled in public elementary schools." This may be an indication that the female Grade 10 students at the Ponciano Bernardo High School are only beginning to develop the digital literacy skills needed to operate computers or laptops in ways that can positively enhance their learning. Likewise, when using computers, girls appear to be less likely to engage in the technical activity associated with operating computer software. This is supported by our findings in which girls indicated an equally low skills access across the four software, regardless of one's ownership of a personal computer or laptop. In contrast, a significant positive correlation was revealed for male students between ownership and skills access, indicating that males are more likely to engage with computers in ways that allow them to develop skills necessary to operate computer software. This reinforces the notion that material access alone is an insufficient measure of digital poverty when viewed in relation to one's capacity to reap the benefits made possible by ICTs. While a strong positive relationship between ownership and academic performance exists for male students, it must be noted that this is coupled with a moderate positive correlation between ownership and skills access, neither of which are present

for female students. Therefore, it is possible that male students develop strategies that allow them to take advantage of computer software in ways that translate to educational advantages in the classroom, which may affect their academic performance. The extent to which computer activity is socially constructed to be a predominantly male activity is also reflected in a report by the Philippine Commission on Higher Education from 2012-2013, indicating that Information Technology (IT) is the most commonly completed undergraduate degree by male students in the country.

The Deepening Divide

Though socioeconomic inequality is most apparent between the private and public school educational contexts in the Philippines, income inequality within institutions themselves also serves as a primary determinant of the digital divide and educational opportunities of students. Through our interviews with the school principal and registrar, the Ponciano Bernardo High School can be characterized by the stark differences existing among their students in terms of socioeconomic backgrounds, being described as a school of "extremes" in terms of household incomes. Though specific incomes were not disclosed by the school, it was mentioned that a significant number of students at Ponciano Bernardo are children of oversees Filipino workers (OFWs), whose parents work in high- to middle-income countries, earning higher wages in foreign currencies, and are able to send remittances back to their families in the Philippines. As it was revealed that the financial cost of computers and laptops remains as the greatest barrier to acquiring these technologies, students from lower socioeconomic backgrounds are at a greater disadvantage compared to their counterparts with respect to the educational advantages that digital technologies offer. The school's perennial Feeding Program also suggests that students who are unable to afford these technologies that are becoming integral to learning in the 21st century are still struggling to acquire basic necessities, as they are faced with greater barriers to effective learning such as hunger in the classroom. As the Digital Divide is inherently linked to socioeconomic inequality, the pre-existing inequalities are shown to be aggravated further by the emergence of digital technologies as information is now regarded a "primary good" in contemporary society (Van Dijk, 2005).

Conclusion

Analyzing digital inequality entails that one look beyond material access, as other factors, such as motivational access, skills access, and usage access, affect the extent to which one may be regarded as 'digitally poor.' One's levels of digital access ultimately has a bearing on one's performance in the classroom and his or her educational opportunities. Though this study reaffirms numerous studies indicating that one's access to digital technologies may positively affect learning and lead to several educational advantages (including higher academic performance in the classroom), this does not appear be the case for female students at the Ponciano Bernardo High School. Exploring the social contexts for computing and the extent to which this is perceived to be a male-dominated space in Philippine society may be an essential step in understanding and alleviating the apparent gender-based digital divide. Allowing girls to develop the skills necessary in order to become 'digitally literate' like their male counterparts may enable them to reap the educational benefits made possible by ICTs. This exploratory case study reveals that students who are unable to afford digital technologies and those who do have ownership of the technologies but are unable to operate its software, particularly females, are

found to be the most disadvantaged when it comes to the effects of digital poverty on one's education.

In the midst of the rapidly globalizing world, the Philippine Department of Education has recently implemented the nationwide Basic K-12 curriculum, with the overarching educational aim of "developing learners with 21st century skills" (DepEd, 2015, p. 20) or the skills necessary in order to succeed in the Information Age. Given that a significant number of students in the classroom are unable to purchase their own information technologies and/or are unable to operate the computer software increasingly necessary in the contemporary educational setting, acknowledging the digital divide's critical role in aggravating the uneven educational opportunities of the Filipino learners is paramount in any attempt to close the gaps in educational attainment in the country, as this entails significant implications for their life outcomes.

In a country where economic poverty has been shown to be directly linked to low educational outcomes, digital poverty emerges as a new and insidious wave of inequality pervading the classroom in the 21st century, reconfiguring and further amplifying the reproduction of social inequality, where being 'digitally rich' or 'digitally poor' can significantly affect one's place in the divergent life trajectories produced in the highly uneven socioeconomic landscape of Philippine society. As acquisition cost remains as the greatest motivational barrier to owning a personal computer or laptop, policy directives to increase material and skills access for these individuals, particularly at the household level, is crucial in improving educational outcomes across the population and maximizing the country's human capital in contemporary society.

Topping a survey conducted across 32 emerging and developing countries, 88% of Filipinos indicated that they agreed with the statement "the Internet has a good influence on education" (Pew Research Center, 2015). Where the capacity of digital technologies to improve learning and provide greater educational opportunities for individuals has been repeatedly reaffirmed by numerous studies and the general population's attitude towards ICTs and their effects on educational outcomes are positive, the next step in actualizing the benefits offered by digital technologies is to close the Digital Divide by providing inclusive digital access to students who would otherwise not benefit from their engagements with the technologies, particularly as a result of underlying factors such as gender roles and economic poverty.

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