A PHENOMENOLOGY OF ICT SCARCITY: LIVED EXPERIENCES OF INSTRUCTIONAL LEADERS IN PHILIPPINE PUBLIC SCHOOLS

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Abstract- Educational policies are formulated particularly on the area of Information and Communication Technology in Education. These policies largely consider various factors like financial, geographical, political, religious, and socio-cultural similarities and differences among educational contexts, settings, teachers, students, and educational leaders. Amidst the widespread use of information and communication technology, instructional leaders of the Philippine Basic Education, particularly the public schools are still experiencing scarcity of this technology. Through hermeneutic phenomenology of Van Manen, this study aims to holistically understand how instructional leaders lived through the phenomenon of scarcity of ICT in Basic Education in selected public schools in the country. From five key informants who are principals, head teachers, and master teachers, a rich description of the experience provides the structure of the phenomenon under study. This phenomenological study extracted interwoven themes that surround ICT scarcity. These themes are "Facets of Scarcity: Are These Enough for Us?", "Cohorts of Scarcity: Are They for Us or Against Us?", and "Initiatives in Scarcity: Can These Sustain Us?" These captured the essence of the experienced phenomenon that besets various public elementary schools in the country today. The experiences of key informants suggest that the phenomenon of scarcity is in a see-saw reality which is a balancing act between ICT utilization and integration and that of ICT scarcity. ICT scarcity carries the burden of different aspects and dimensions of scarcity, captured in the theme "facets of scarcity." Scarcity, which is an important concept in economics, is a vast reality that can never be outweighed, unless educational leaders do something to strike the balance—the "initiatives in scarcity."

Key words- ICT, ICT problems, instructional leaders, technology, computer, Internet, and ICT in Basic Education

I. INTRODUCTION

Information and communication technology scarcity remains to be a day-to-day hurdle for teachers and instructional leaders to surpass despite the conspicuous rapid urbanization and digitization.The use and growth of information and communication technology has been a universal phenomenon (Burkle and Sayed, 2002). In any work setting, this has been pervasive to make production of goods and offering of services more efficient and competitive. In South Asia, particularly Bhutan, which is a third-world country, exponential growth of this industry has been observed since the introduction of computers in the 1980s. By 2003, Bhutan had 1,130 internet connections (Pradhan, 2003a cited in Baggaley and Belawati, 2010) yet in just two years in 2005 it increased to 3,036 (Government of Bhutan, 2006, as cited in Baggaley and Belawati).

To corroborate this, an article shared that as of 2010, forty percent of adults age 30 and over, 72 percent of young adults, and 73 percent of teens use social network sites, with year-over-year time spent on Facebook increasing by 566 percent. In 2009, Twitter users were generating 35 million messages (tweets) per day. Wikipedia has more than 12 million registered users and more than 3 million content pages. Amidst this widespread use of information and communication technology, this study aims to holistically understand how instructional leaders lived through the phenomenon of scarcity of ICT in Basic Education in selected public schools in the country using phenomenology.

ICT and Education: The Global Field

Kozma (2010) asserted that every aspect of the 21st century society is being transformed by information and communication technologies: the economy, the workplace, the home, the health sector, commerce, government, and even education. However, Kozma believed that ICT in education is late compared to others because educational systems (referring to changes made by ICTs to other aspects) operate much as much as they did at the beginning of the 20th century (see also Roblyer and Doering, 2013). Moreover, studies revealed a general agreement that ICT resources can make studies more interesting. Students can save time for other work when they use computers. Gender differences were also highlighted in these studies. For instance, in Bhutan, a higher proportion of male students tend to use ICT-based learning methods compared with female students. Female educators have lesser levels of experience with ICTs compared with male educators. In Sri Lanka, Internet cafes appear to be more popular with male than female students (Baggaley and Belawati, 2010; Jamtsho and Bullen, 2007; Sangi and Ahmed, 2007; Wikramanayake et al., 2007).

Amidst growing acceptability of ICT in education, governments have recognized the need for a greatly widened "mass" access to higher education. They find it important to equip national workforces with the initial grounding and lifelong learning skills that are needed to provide the responsiveness and flexibility required for an ever-accelerating rate of change (Roblyer and Doering, 2013; Stiles, 2000). Meanwhile, a report from SRI International Center for Technology in Learning compared the use of

educational technology for K-12 students in 21 countries. This study revealed that despite the recent global economic crisis, economically competitive countries continue to invest in technology to improve their educational system. The same study discloses that 20 governments indicate that improving school access to the Internet is a majority priority, and about half reported that increasing students' access to computers is a top national priority ("SRI Researchers Compare," 2012).

The Context of ICT Scarcity: A Focus on Basic Education in Public Schools

Scarcity of ICT in Basic Education in the Philippines does not only concern those underserved communities but also those schools in highly industrialized, highly urbanized cities like in Metro Manila and other neighboring cities that have lower rate of poverty incidence of approximately below 10%. This scarcity is not only evident in public schools but even in private schools. The Asian Institute of Journalism and Communication (AIJC, 2010), in its report to the UNICEF titled "Survey on Internet Access and Use by Filipino School Children," purports that while it is recognized that even basic needs are still wanting in many public elementary and high schools, there is a need to address the digital divide between public and private schools. Still, many private schools in the regions also lack computer facilities. Scarcity of ICT also manifests in internet connectivity. In the same report, AIJC further discovered that internet usage is highest in Visayas area (90%) and Metro Manila (88%). The lowest incidence of usage is in Mindanao (47%). The Syncopate Media Atlas, which conducted a nationwide survey from July 2008 to June 2009, reported that Internet access in the Philippines stands at 40%, with the younger segment turned out to be the highest users at 60% in the Greater Manila area, but only 46% of the respondents have access. Majority of the non-users of the Internet are female (55%); between 9 and 12 years old (51%) are in grades four to six (52%) and studying in public schools. The findings that most non-users are from public elementary schools and females validate the existence of digital divide. While the Department of Education (DepED) has a program which provides computer packages to public high schools, this is not available to public elementary schools. Ironically, as the AIJC (2010) contends, "Internet is recognized as potent education tool especially among elementary schoolchildren. They do recognize the educational value of the Internet as reflected in their use of Internet for school work." (p.18). This study aims to describe and understand the essence of well-lived experiences of instructional leaders about scarcity of ICT in selected Philippine public schools.

II. METHODOLOGY

This study utilized the hermeneutic phenomenology of Van Manen that extracted three themes from six key informants who are instructional leaders from public schools of Zamboanga Sibugay and Region 3. Data saturation was met at six informants. In-depth interview triangulated with Focused Group Discussion, observation and reflexive journaling was utilized to get a thick description of the phenomenon of study.

III. RESULTS AND DISCUSSION

Theme 1: Facets of Scarcity: Are These Enough for Us?

Theme one highlights the various vignettes and dimensions of ICT scarcity in various public schools in the country ranging from facilities, knowledge, skills, and even in the area of educational leadership and management.

Deficit in ICT Facilities. Deficit ranges from just mere deficiency to even nothing at all. The same scenario is experienced by instructional leaders who experienced no computer units given to their schools. Technically, majority of the leaders and teachers have their own units but these are for their own personal use and not for the use of every student in school. Nonetheless, there are few teachers who have no computer units. Therefore, scarcity is not really absence of units because some schools have their computer units, but these are not enough to serve the majority of their pupils. For instance, a master teacher revealed that in her school, they have two units of computer for a school population of 320 students. The ratio of 320:2 or 160:1 has never been ideal to teach students about ICT. Some schools in the country were recipients of two to five computer units, either from the government or from NGOs like the USAID. Even then, the number of computer units could never suffice the need of many students and teachers. Only big schools are recipients of these few computer units. Furthermore, scarcity is also expressed in lack of some ICT-related facilities like a computer room. The use of ICTs in education (ICTE) starts with installing hardware infrastructure in schools, thus addressing the first level of the digital divide (Ale and Chib, 2011; Attewell, 2001; Hawkins & Oblinger, 2006) although introduction of technology alone may not be sufficient to achieve educational objectives. In Asia, acquiring hardware in schools takes precedence even before teachers and students learn how to use it in the teaching and learning process. It is true that access to computer hardware alone rarely leads to change (Adeya, 2002; Ale, 2011; Bracey, 2005); however, infrastructure is very essential that without it, ICT would never exist.

Further still, scarcity may mean limitations in internet connectivity and accessibility. Internet connectivity was bragged by SB that her teachers can send SMS and call because they have a network signal. Therefore, she and her teachers bring with them their own laptops to surf the internet. This is worth noting because according to the study of the

Synovate Media Atlas conducted nationwide from July 2008 to June 2009, more people access the web from an Internet Cafe (54%) than at home (47%) and followed by at work place (17%) that may include schools.

Deficit in ICT Knowledge and Skills. Scarcity is not only of ICT facilities but also of the necessary knowledge and skills to put into good use any available resource, specifically in the teaching and learning process. Technology can be available but teachers cannot fully utilize it because of computer illiteracy; thus, the role of ICT is now relegated to preparation of reports and not mainly for pedagogical purposes. That is why many teachers still prefer the chalk talk approach and even scribble stories on Manila paper, instead of using multimedia presentations or even LCD projectors. However, Wesch, as cited in Stephens (2012), posits that the method a teacher uses in using ICT is nothing if the bond between the professor and student is not given focus. Stephens stressed that mere adding of ICT to a course will never improve learning nor create a community. The bond between teachers and students is more important to class success than new technologies, and it has nothing to do with blogs or even mobile phones. Gee (2012) calls this "anti-education viewpoint." Knowledge and skills of ICT is more than just a "skill-and-drill" standardized test on computers, and teachers should know more than this. Gee lamented that some teachers have lost the true meaning of education in the service of personal enlightenment and broader social good. Gee emphasizes, as cited in Bush (2012) that if schools hold on to these anti-education viewpoints, the use of technology in classrooms will follow the old paradigms of education rather than a more expansive view needed to develop twenty-first-century innovation and critical thinking. Nevertheless, according to the study made by the Synovate Media Atlas as cited by AIJC, the second reason of Internet non-usage is computer illiteracy. AIJC (2012) argues by saying that the high level of computer illiteracy should be prioritized for children to be able to compete and survive today's knowledge society. This competitiveness is, in a great extent, reliant to digital or ICT literacy.

Authority's Limited Attention to ICT in Education. Limited attention may mean non-support from the government. Some non-government organizations take the initiative to fill in the gap, however. SL reported that they were previously awarded computer from USAID, but still it was not enough. Heeks (2002) showed the disparity between developed and developing countries, like the Philippines, on the issue of ICT implementation. However, there are also several similarities according to Westrup (2002), as cited by Gichoya (2005). These include insufficient funds, bureaucracy, and user needs. The difference is how problems are addressed in different countries. However, Odedra (1993), as cited by Gichoya, argued that lack of funding is not always the problem particularly in developing countries, but lack of coordination at different levels in making effective use of technology.

Another problem is that information dissemination is really scarce in the grassroots, as manifested by confused information from leaders. ML believed the idea that one of the criteria used by the government to award computer units is whether a school has more IPs (Indigent Personalities). Deficient information dissemination emanates from lack of coordination, as Odedra (1993) posited. Gichoya (2005) argued that problem with coordination is considered one of the factors why ICT project implementation in the government becomes a failure. Literature shows that planning and management of ICT projects has a very poor record in developing countries (Galliers et al. 1998, Qureshi 1998, Heeks 2002, Mgaya 1999), and lack of coordination is just one of the factors cited.

Limited ICT Management. It is not the sole responsibility of the government to make ICT's presence felt in basic education but it ought to be a concerted effort with the stakeholders, particularly instructional leaders, who are in direct contact with the students and teachers—the end consumers of ICT in the educational system. This aspect of scarcity that has been plaguing basic education manifested first in instructional leader's lack of initiative to do something to address the status quo. Peansupap and Walker (2006) identified constraints in two levels: personal and organizational. At the organizational level, constraints include basic levels of computer experience, time available to learn, and the identification of clear benefits of ICT use. Further, according to Becta (2004) as cited by Bingimlas (2008), there are factors that influence the likelihood that good ICT learning opportunities will develop in schools: ICT resourcing, ICT leadership, school leadership, and general teaching.

Biased Mindset on ICT Utilization. ICT will never thrive in a highly biased environment against ICT utilization. ML articulated this feeling and perception when she downplay the importance of ICT in elementary education which adamantly defeats the purpose of ICT4E to Philippine basic education. ICT4E aims to make the Philippine brand of basic education relevant to our digital society and globally competitive. It permeates all aspects of life including age. This biased mindset seems to be similar to a study of Ale and Chib (2011) which revealed that teachers believe that ICT is only good for high achievers.

Theme 2: Cohorts of Scarcity: Are They for Us or Against Us?

Expediency and Pervasiveness of ICT in the Education Sector.The experiences of instructional leaders substantiate how ICT has penetrated the education sector, particularly basic education.

Expediency of ICT can be seen in the online reporting of teachers to the national headquarters of the Department of Education. Kader (2007), citing The Smart School Roadmap (2005), argued that to make the best use of new ideas and tools offered by ICT, teachers must understand the relevance, usefulness, and usability of those ideas or tools. Teachers need to be computer literate themselves and be confident in the use of ICT in order to understand what it can do to enhance their own development and enrich the learning experiences of their students.

Geographical Influence on ICT Utilization. Schools of ML and SB are basically situated more or less five to ten kilometres from the provincial highway and they are in the middle of nowhere. ML's school is in the middle of a vast rubber plantation and tall grasses surrounded by mountains and rolling hills. Going to the school is an ordeal to take because only habal-habal or a motorcycle with a carrier that could take more than three passengers can penetrate the area. The same scenario can be observed with SB's school, except the strong signal from a cell site in the vicinity of streams of water, big trees, and tall grasses. Further, ML shared that her teachers usually were attending computer trainings in Ipil, the capital town of Zamboanga Sibugay, as it has the ICT resources and capability. In a study in Malaysia, Kader (2007), citing Bakar (2005), noted that the biggest challenge facing their program, Smart School Integrated Solution (SSIS) is achieving a consistent level of ICT infrastructure in schools particularly in the rural setting. There continues a great disparity in the level of ICT availability and in the level of ICT use in school, especially between schools in rural areas and schools in urban areas. In the same paper, Kader asserted that the lack or low quality of Internet connectivity in rural schools threatens to amplify the disadvantages of rural learners.

Political Influence on ICT Scarcity. ML shared her consternation that one town is more fortunate than the other because each public school is given a laptop from their local government because the mayor was supported by teachers during election and as promised; the mayor gave each school their reward. However, for schools in another town, whose teachers were very vocal against their mayor, teachers and leaders bypass their immediate Local Government Unit (LGU) and go straight to their Provincial Local Government Unit (PLGU), in which the governor is a political ally, to ask for help. ICT scarcity can be restrained at a certain level when there is an initiative from the local government to help and do not heavily rely on the national government to provide everything. In studies conducted in five ASEAN nations such as Indonesia, Malaysia, the Philippines, Thailand, and Vietnam, similar problems emerged such as, lack of funding and rural and remote communities continues to be plagued by weak infrastructure (Gichoya, 2005; Quah, 2008).

Poverty. Poverty is pervasive in our society. ML shared the difficulty the students have been encountering every day much more that majority of them come from families of tenants who till the land for a living. Students, precocious as they are, seldom go to school because they need to attend first to the needs of their family. Sometimes, teachers use the school's feeding program just to entice students to go back to school after deciding to quit to help their parents in the rubber plantation, as tenants. Poverty has always been a companion of Filipinos, most particularly in the potentially liberating context of education. ICT scarcity thrives with poverty in the country. The National Anti-Poverty Commission, through its National Anti-Poverty Program, admits this sordid situation and poses to address the worsening poverty in the nation. According to the National Statistical Coordination Board, in its report to the Commission, the number of individuals below the poverty line had increased from 19.8 million (3.2 million families) in 2003 to 23.1 million (3.9 million) in 2009. This occurred despite the modest economic growth at an average of 4.8 percent for the 2003-2009 period (National Anti-Poverty Commission, 2010).

In the study of the Asian Development Bank (2010), it has been revealed that the subsistence incidence in the Philippines is 10.8 percent for individuals (or 9.4 million) and 7.9 percent for families (or 1.5 million). The proportion of individuals below the subsistence threshold has significantly declined from 16.5 percent in 1991 to 10.8 percent in 2009. Studies have shown that the food prices and low agricultural productivity have a significant impact on the level of subsistence in the country. However, as ADB further disclosed, in areas like Western Mindanao, CARAGA and the ARMM saw an increase in subsistence poverty from 2003 to 2006 due to agricultural production disruptions aggravated by the incidence of armed conflict in the area. Coleman (2012) posited that ICT appears to be both a unifying and a divisive force as far as socio-economic factors are concerned. This means that in spite of its advantages, the use of ICT by governments will exclude those who lack access to these services and information or those who do not use them effectively. This situation is often referred to as the "digital divide" (Civille, 1995; Coleman, 2012; Raab, et al., 1996).

Age Factor in ICT. The world is experiencing a unique experience of a digital divide—a void produced by a fast turnover of technology. Children of today learn ICT faster than adults. They are more ICT literate than older adults.ML attests to this divide when she claimed how her own kids taught her about computers and Internet. The concepts of digital "natives" and "migrants" pervade the academe particularly among teachers. The natives are the 21st century students and the migrants are the teachers. However, Guo, Dobson

and Petrina (2008) argued that this may be misleading. According to their study among over 2,000 pre-service teachers in Canada between 2001 and 2004, there was no statistically significant difference with respect to ICT competence among different age groups for either pre-program or post-program surveys. This implies that the digital divide thought to exist between "native" and "immigrant" users does not exist.

Safety and Security Concern. Undeniably, one of the factors alongside other factors like poverty that surround ICT scarcity is the safety and security concerns of instructional leaders. SL expressed her concerns about these when she noted that school supplies and equipment, like a sound box, are endorsed to school neighbors for safekeeping because of robbers in the area and they do not know who these robbers are. Leaders are afraid that ICT facilities will never be spared like the stolen lamps and bulbs. For the informants, they should first ensure that before they can have ICT facilities in their school, rooms should be well secured from the hands of robbers, who probably are residents of the same community where the school has been erected.

Curriculum Issues and Concerns. ICT scarcity exists alongside with curricular challenges. One of these is the congested curriculum. Referring to the basic curriculum under the newly implemented K-12 program of DepEd, ML claims, "It has always been crowded unlike during our time. K-12 program will allegedly decongest the curriculum, but ML insists that it is still congested with so many things to integrate such as population education,, sexuality, children friendly environment, and even research. If ICT is integrated with all those features, it will add to the congestion of the curriculum.

One challenge that basic education should deal with is the limited capability of the instructional leaders to properly integrate ICT with the basic education curriculum. From the experiences of the leaders, one reason for this is the faculty's limited understanding of ICT integration. For them, integration is offering ICT as one course in the very congested curriculum of basic education. Moreover, some leaders do not also see the urgency of integrating ICT in the curriculum. It is not a must to integrate ICT in all courses. Further still, one of the issues that need to be scrutinized is the disparity between the goals of ICT integration and its assessment and evaluation. ML noted that there only few questions about ICT in the yearly achievement test.

Moreover, one of the studies highlights strategies to manage barriers to ICT integration. These strategies include appointment of technical support staff; appointment and training of student ICT helpers; sufficient time for teachers to prepare for ICT-mediated lessons; support provided by school leaders in addressing teachers' ICT concerns; and training, demonstrations or advice for teachers on how to incorporate ICT into classroom instruction (Lim and Khine, 2006). The study demonstrates how teachers and educational leaders should do integration as a team. Teamwork is a key to success.

Hope Amidst Scarcity. Of all the cohorts of scarcity, hope is undeniably the most optimistic of all -- the flickering light in the dark. ML shared this sense of hope when she said, "Hopefully our aid will come...that what other schools are enjoying we will also enjoy...may be five years to ten years, but ten is so distant." SB shares the same tenor with ML as she said, "Since we badly needed computer units, we, the teachers, dream that each school has its own computer; that all teachers will undergo seminars about ICTs so that we can respond to the challenges posted by these online submissions of reports." CP hopes and believes that ICT will be fully developed in her school and there would be a 1:1 ratio between computers and students' from today's ratio of 320:2.

Theme 3: Initiatives in Scarcity: Can These Sustain Us?

Curbing ICT Facilities Deficit. Considering the scarcity of facilities, instructional leaders employed some initiatives and one of these is bringing their own computer unit to school. ML admits that she usually brings her personal computer to her office. Not only by buying personal computers that self-help is exemplified but also by using one's own money to avail of the internet access of a computer shop or an Internet cafe. Basing on the assertion of Robertson (2003) when she said that only technology could save schools, there is indeed a pressing need to address scarcity and nip it in the bud than just superficially treating the symptoms the scarcity manifests. There are several compelling reasons why the government and the schools will have to make continuing and significant investments in information technology. They are grouped into three categories: competitive position; teaching, learning, and curriculum enhancement; and student preparation for the labor market (Gilbert and Green, 1995).

Curbing ICT Knowledge and Skills Deficit. Nevertheless, scarcity brings the best of every instructional leader and teacher because it burns the fire of creativity and resourcefulness within them. Instructional leaders' knowledge about ICT is a must amidst scarcity like this if the Philippine basic education is serious with what it wants to realize in the near future. An instructional leader has all the power in her hands to curb scarcity of ICT knowledge and skills. A leader can teach and train his/her subordinates about ICT as what ML did and reflected how important it is to train and teach her teachers about ICT. In this standpoint, ICT scarcity does not only wield resourcefulness and creativity but it also is the right time to brandish the true essence of

leadership. Yuen, Law and Wong (2003) corroborated this assertion as they posited that "the strategy adopted by the school in instituting [ICT integration] and the resulting variation of pedagogical practices using ICT is strongly dependent on the school leaders' vision and understanding of the role and impact of the curriculum, their goals and objectives for ICT integration," and other factors.

CONCLUSIONS

This study yields several salient points. First, ICT scarcity exists both internally and externally. It is not only with the budget and equipment that makes scarcity real but also there is scarcity in knowledge and skills needed in ICT-Integrated education; in leadership and management skills of instructional leaders who lose hope and will to address the pressing issue of ICT integration in education; in information dissemination from authorities, and in the worldview of some instructional leaders that makes the scarcity more profound as this will gradually extinguish the flickering light of hope for basic education to really benefit from the blessings ICT brings. Second, ICT scarcity in Philippine basic education mirrors the controversial realities that have besieged the country.

How will an instructional leader expect for ICT facilities in one's school which has problems of lack of rooms to hold classes? Or even a community that makes the school a prospect ground for robbery and theft? How will one expect ICT to be fully operational in a school which lacks connectivity because of its unimaginable distance from civilization? It may be possible that ICT scarcity in school can be controlled if students and teachers have their own resources. However, for schools whose students need to absent from their classes just to help their parents earn a living and sustain them for the next few days, ICT is just an elusive dream to think of. These realities – the cohorts of ICT scarcity - will continue to exert their influence in Philippine basic education unless educational leaders take the option of doing something to make both ends meet. Lastly, this phenomenon creates and provides a good platform for great leaders to show off their wares. History has been witnessing that great leaders usually have been rising up in times of uncertainties. Now is the right time for this.

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