Philanthropic And Impact Investment In Education: Examining The Implementation And Financing Of ICT Initiatives In Education In East Asia And The Pacific And South Asia

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A thesis submitted in partial fulfillment of the requirements for the Master of Arts degree in Education
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Abstract

The information and communications technology (ICT) field is an area in which non-state private (NSP) actors are currently involved. This master’s thesis focuses on the implementation and financing of ICT education initiatives in East Asia and the Pacific and South Asia by non-state private actors, with a focus on private foundations and impact investing actors. The study draws and uses data from an original regional-level database of NSP financers operating in the two regions, developed as part of a larger research program. It conducts a basic descriptive analysis within a descriptive case study research design, asking the main research question: What types of ICT initiatives in education are funded and implemented in East Asia and the Pacific and South Asia by non-state private actors?

Keywords: Non-State Private Actors, Information and Communications Technology (ICT), Education Finance, East Asia and the Pacific, South Asia, Global South.
Summary for Lay Audience

Globally, non-state private (NSP) sector engagement in education is an expanding field. The integration of information, communications technology (ICT) in education is a growing interest, as technologies play a large part of communication, accessing resources, and producing knowledge in the 21st Century. However, there is little research on the support of ICT initiatives in education in the Global South by NSP actors. The larger research program for this MA thesis on mapping NSP actors reveal that Asia specifically East Asia and the Pacific and South Asia, is attracting many NSP actors in the delivery of education initiatives. This thesis is a comparative study that examines the similarities and differences in the implementation and financing of ICT initiatives in education by NSP actors.
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## Abbreviations and Acronyms

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<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>DE</td>
<td>Distant education</td>
</tr>
<tr>
<td>EAP</td>
<td>East Asia and the Pacific</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross domestic product</td>
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<tr>
<td>NA</td>
<td>North America</td>
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<tr>
<td>NSP</td>
<td>Non-state private</td>
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<tr>
<td>MOOC</td>
<td>Massive open online course</td>
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<tr>
<td>ICT</td>
<td>Information and communications technology</td>
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<tr>
<td>PPP</td>
<td>Public private partnerships</td>
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<tr>
<td>US</td>
<td>United States</td>
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<tr>
<td>SA</td>
<td>South Asia</td>
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<tr>
<td>SDG</td>
<td>Sustainable Development Goals</td>
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<tr>
<td>STEM</td>
<td>Science, technology, engineering, and mathematics</td>
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<tr>
<td>STI</td>
<td>Science, technology, innovation</td>
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Chapter 1: Introduction

The global education market is estimated to reach a market value of $10 trillion by 2030 (Holon IQ, 2018). Education has become a vital target of focus for private investors (Srivastava & Read, 2020). However, there is insufficient data and research on private investment in education, thus resulting in a lack of transparency (Srivastava & Read, 2020).

The integration of information and communications technologies (ICT) is of growing importance in education (Galvin, 2015) and public policy (Hanafizadeh et al., 2019). In its simplest definition, ICT in education refers to various modes of technology in education and their use, such as “desktop computers, mobile devices such as laptops, notebooks, tablets, smartphones etc.; broadband; school websites, email addresses, virtual learning environment, etc.; deployment of equipment in classrooms, computer labs, libraries, etc.; maintenance” in order to learn and communicate (Wastiau et al., 2013, p. 11).

ICT has reportedly become an increased medium through which to deliver education in the Global South. Nations in Asia, in particular, are highlighted by some as finding ‘innovative’ ways of integrating ICT in the classroom (Amoloza, 2013; Espinosa & Caro, 2011; Lumagbus et al., 2019). Examples of ICT initiative programming activities in education in Asia include: computer-assisted instruction/learning programs/products and services, computers and tablets, digital classrooms, online learning portals; online school/centre, massive online open course (MOOC) instruction, multimedia services and products including audio-visual (AV) and non-computer media, school Wi-Fi/education broadband/initiatives, and science, technology and innovation
(STI) activities including research and development, training knowledge workers, technology acquisition and diffusion.¹

The discussion of ICT in education has developed into a controversial debate and in the current literature (Bradshaw & Younie, 2018; Livingstone, 2012). To some researchers, it is presented that ICT in education can likely motivate and enhance independent learning (Lidström et al., 2014; Ra et al., 2016). By contrast, certain researchers view ICT solely as an instrument to facilitate teaching, rather than an instrument that results in effective learning for students of all needs (Price, 2015; Umar & Abu Hassan, 2015; Sutherland et al., 2008). Sutherland et al. (2008) argue that technology is effective by itself, however, the way that teachers utilize technology to facilitate learning is key. Technology is also an area with growing interest amongst NSP actors (Abbot, 2012). This is controversial because it is said to be occurring during a time when privatization of/in education and increased private sector engagement is expanding markets across the globe (Verger et al. 2016).

This MA thesis examines education ICT initiatives that were financed by private foundations and impact investors in East Asia and the Pacific and South Asia.² The initiatives were operational between January 2015 and December 2017. The thesis rests on the central research question: What types of ICT initiatives in education are funded and implemented by non-state private actors in East Asia and the Pacific and South Asia? This study conducts a preliminary analysis using a subset of data from a larger regional database on NSP financers of education in Asia developed in a larger research program.³ It is intended to direct broader analysis in the larger

¹ As found in the regional database (Principal Investigator, Srivastava), data source for this MA thesis.
² Regions are operationalized using the World Bank typology.
³ The larger research program was headed by Prof. Prachi Srivastava, funded by a grant from the Social Sciences and Humanities Research Council of Canada. Some activities were co-financed by the Brookings Institution.
research program and not as a final reporting of results in the database. This MA analysis utilizes basic descriptive statistics to determine the prevalence of ICT initiatives and their implementers and funders in the selected regions.

### 1.1 Relevance

The current literature is severely limited on studies of the implementation and financing of initiatives by NSP actors in education, including ICT initiatives in education. There is a further gap in the literature on the financial support that ICT initiatives in education receive from the private sector. There are a variety of NSP actors, including private foundations, that have financially supported ICT programs whose stated intentions are to provide students opportunities to gain education and skills in the international demands of science and technology (Caswell et al., 2008). In the current literature, the social impact of ICT education on students is discussed both positively (Christian et al., 2017; Mahmoudi et al., 2012; McMannis & McManis, 2016; Milici et al., 2014; Ra et al., 2016; Sánchez et al., 2011; Tang, 2010) and critically (Price, 2015; Umar & Abu Hassan, 2018; Waters et al., 2014). While certain researchers would suggest that ICT does have its benefits with enhancing learning (Carpenter et al., 2013; Falck et al., 2018; Ra et al., 2016), many would suggest that the way that ICT is being used is important in contributing to better academic achievement and reflective learning (Cox & Marshall, 2007; Price 2015; Livingstone, 2012; Umar & Abu Hassan, 2018; Waters et al., 2014).

Globally, NSP actors have increasingly established and delivered education initiatives, sometimes outside of state control, as well as in partnership with state governments through public private partnerships (PPPs) (Robertson, 2012; Steiner-Khamsi & Draxler, 2018). There are not-for

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Given the timing of the MA study, data cleaning and analysis in larger database was being conducted. Therefore, results reported here are to indicate potential further avenues of inquiry.
profit NSP actors, however, some newer actors in education operate with a profit motive, raising questions about their intentions or ability to ensure Sustainable Development Goal (SDG) 4 on equitable quality education for all (Georgeson & Maslin, 2018). NSP actors are engaged in creating initiatives with the incentive to provide access to education for students in need (Berry, 2010), although there is contestation in this regard (Aubry & Dorsi, 2016). NSP actors are viewed with a critical lens by a number of policy actors and researchers (Aubry & Dorsi, 2016; Robertson et al., 2012; Roberston & Komljenovic, 2016; Ron Balsera et al., 2016; Srivastava, 2010). There is a larger debate on whether NSP actors violate the basic human right to free and compulsory education (Aubry & Dorsi, 2016).

1.2 Actors of Interest and Definition of Terms

There is a typological gap and lack of clarity on organizational types of NSP actors operating in education. The larger research program from which this MA study stems developed a typology of organizations to classify NSP actors to operationalize the database, which was based on an extensive review of the literature and inductive analysis (Srivastava & Read, 2019a). NSP actors in the database were classified into seven types: charity/NGO; CSR initiative/unit; impact investor; network service organization or platform; private foundation; social investment firm/fund manager/fund advisor/investment consultancy service; and other.

This thesis focuses on private foundations and impact investors. It uses the operationalizations of private foundations and impact investors for the larger research program. Private foundations were operationalized as:

Not-for-profit oriented; not part of the public sector; use their own financial resources, usually from an endowment; led by an independent board of trustees or CEO; aim to face issues for common good; can be grant-making or operational (implement own programs or in cooperation with others); includes independent
foundations (family and individual), corporate foundations, and community foundations (not primarily public supported) (Srivastava & Read, 2019a, p. 27).

The operationalization of impact investors for the database is based from the Global Impact Investing Network’s (GIIN) (2018) definition of the ‘ideal type’, and some additional criteria:

Intentionality: aim to address issues of common good (social or environmental); expectation of return on investments with a range of returns (at minimum a return of capital); use a range of financial instruments (or made across ‘asset classes’); commitment to measure impact; additional criteria: must be organizations; use own financial resources (not a broker); can be not-for-profit oriented; exit strategy (intentional or actual), public actors excluded (Srivastava & Read, 2019a, p. 26).

Additionally, the profit statuses of NSP actors could be profit, non-profit, and hybrid. For-profit actors have the expectation of a profit or high financial return on investment (Srivastava & Read, 2019a). Not-for profit actors seek social impact without the expectation for profit; and hybrid actors seek social impact with profit (Srivastava & Read, 2019a).

According to Odeh (2010), The term, ‘Global North’, is often represented as a having developed economies, with technologically advanced societies. By contrast, Odeh (2010) indicates that the Global South has become associated with concepts as ‘agrarian based’ as well as economically dependent on the Global North. There are no official categorisations of either, and they are contested terms. Roy (2014) suggests that with the Global South, the urban is a world that is getting created and recreated through an ‘urban revolution.’ Significantly, this is viewed as a reflection of ‘global urbanism’ as there are new advancements in human development (Roy, 2014).

For this study, the regional and country operationalisations of East Asia and the Pacific and South Asia are based on World Bank typologies. East Asia and the Pacific was classified with 36 countries (see Appendix A) (World Bank, World Development Indicators, 2019a). The Gross domestic product (GDP) in East Asia and the Pacific has increased from USD 8.2 trillion in 2001 to USD 25 trillion in 2018 (World Bank, World Development Indicators, 2019a). South Asia encompasses a total of 9 countries within this classification, with India as the most populous and
the strongest economy of the region. South Asia has witnessed a GDP growth from USD 622 billion in 2000 to USD 3.4 trillion in 2018 (World Bank, World Development Indicators, 2019b).

1.3 Aims and Objectives

This MA study conducts a comparative analysis between East Asia and the Pacific and South Asia. Using the sub-sample of data on ICT initiatives from the larger regional-level database, the aims of this study are to analyze the types of ICT initiatives prevalent in East Asia and the Pacific and South Asia, and to identify their implementers and funders. The analysis compares across both regions in order to gain a broader understanding of the similarities and differences in the concentration of ICT initiatives and the types of initiatives, in addition to their implementation and financing. NSP actors play an important role in the financing of education initiatives, however, the participation of NSP actors in the financing of education is not well understood (Anheier & Leat, 2013; Srivastava & Oh, 2010). Specifically, private foundations play a vital role in the financing of education, however, Anheier and Leat (2013) postulate that the role that foundations have not been conceptualized well by the public. Similarly, Srivastava and Oh (2010) argue that the participation of American private foundations is better known in the literature, but the involvement of other types of private foundations from around the world are not discussed as much.

The main research question is: What types of ICT initiatives in education are implemented and funded by non-state private actors in East Asia and the Pacific and South Asia?

The sub-question(s) are:

1) Comparing ICT activity in East Asia and the Pacific and South Asia:
a) Across the two regions generally, are there different geographic concentrations of ICT programming activities (i.e., main and additional programming activities of the initiatives)?

b) In which education sub-sectors are ICT initiatives most prevalent?

c) In which countries are the ICT initiatives operational in East Asia and the Pacific and South Asia?

d) Which organizational types are implementing the ICT initiatives? How many implementers are there per ICT initiative? What is their profit status?

e) How many private foundations and impact investors are financing the ICT initiatives? How many collective funders (target funders plus co-funders) are there per initiative?

1.4 Organization of the Thesis

This thesis has six chapters. Chapter 2 is the literature review and presents literature on: 1) ICT in education and 2) philanthropic and impact investing engagement/financing of education within the context of the Global South. Chapter 3 is on the methods. It outlines the rationale for using basic descriptive statistics in a case study design, the NSP actors in this study, and the preliminary steps in the data analysis, followed by the methods to answer the research questions. Chapter 4 presents the findings. It is divided in two parts: 1) The East Asia and Pacific and South Asia ICT initiatives and 2) the implementers and funders of the initiatives in this study. Chapter 5, the discussion chapter, interprets the results with critical evaluation of main research question. Chapter 6, the final chapter, discusses the significance of this MA study in terms of its contributions to the current education literature as well as to the academic research on the financing of education initiatives by the private sector, and recommendations for future research.
Chapter 2: Literature Review

In this chapter, literature on ICT in education and on NSP actors in education is discussed. There is also discussion on philanthropic and impact investment activity in education. However, the literature is quite limited in its discussion of the implementation and financing of ICT initiatives by NSP actors, especially in the regions of East Asia and the Pacific and South Asia. Therefore, this chapter will engage in presenting the literature thematically on the discourse of (1) ICT in education and (2) NSP actors in education. This review is critical to understanding the components of the research question and the sub-question(s) within the larger education literature on the implementation and financing of ICT initiatives in East Asia and the Pacific and South Asia.

2.1 ICT in Education

The financing, implementation and delivery of ICT initiatives have become key in education (Cardellino & Leiringer, 2014). Ideally, these initiatives such as Plan Ceibal in Uruguay are defined with the incentive to slowly diminish the digital divide in order enhance digital inclusion in the education system via access to education technologies (Cardellino & Leiringer, 2014). Cardellino and Leiringer (2014) postulate that though the literature presents ICT through new technologies (i.e., computers, laptops) as having the potential to revolutionize education, they argue that it should also be taken into consideration that ICT does not guarantee it.

Another example of an ICT initiative in the Global South is One Laptop Per Child (OLPC), a non-profit global initiative with the objective to provide low-cost devised laptops to students in low-income countries (Purington 2010; Roberts & Zamora, 2012). However, though the aim of OLPC is to increase computer literacy, the devices were very recently reported as being of very
poor quality and did not function for long (Reese, 2019). In Asia, certain studies have examined
the integration of ICT in the Philippines (Amoloza, 2013; Espinosa & Caro, 2011; Lumagbus et
al., 2019) and in India (Chatterjee & Nath, 2015; Gandhi, 2014; Khan & Ghadially, 2010).

2.1.1 Defining ICT: Information Communications Technology

The technological use through computers became critical in the communication and
processing of information in online education, especially in higher education (Lee, 2017). Gil-
Flores et al. (2016) argues that ICT has been gaining attention as a tool for learning as many
education systems around the world have been integrating computer-based technologies into the
classrooms and internet based learning into the classroom environments.

According to Zuppo (2012), the definition of ICT varies and is utilized in a variety of
contexts. In breaking down the acronym, there are two ways that ‘ICT’ is conceptualized. The first
is information and communication technology (ICT), and the second is information and
communication technologies (ICTs) (Zuppo, 2012). The former denotes a singular form of
communication, whereas the latter refers to the pluralistic data infrastructure of the various types
of communicative technologies.

This thesis employs the pluralistic concept, specifically information and communication
technologies, because there are many types of technological devices (e.g., computers, tablets, or
mobiles) that can be used by students who are learning from the ICT initiatives themselves. Zuppo
(2012) suggests that a primary general definition of ICTs is: “devices that facilitate the transfer of
information through digital means” (p. 13). Common ICT outlets that have become integrated in
the workplace and in an educational environment mainly include “desktop computers; mobile
devices such as laptops, notebooks, tablets, and smartphones” (Wastiau et al., 2013, p. 11). These
common ICT outlets allow one to obtain and communicate in a virtual learning environment (Wastiau et al., 2013).

2.1.2 ICT in Education: A Secondary Option?

In the current education literature, the discussion of ICT in education is greatly contested. For example, Ra et al. (2016) argue that the combination of ICT in education, can overcome the obstacles to quality, equity, and efficiency in educational learning in Asia and the Pacific. They argue that ICT should be considered at macro- and micro levels. Furthermore Ra et al. (2016) argue that governments should consider how to integrate a holistic approach to ICT within education as a way to ensure good quality, equity, and efficiency in education.

In examining the factors that make ICT integration successful in South Korea versus Chile, Sánchez et al. (2011) state a country’s political emphasis on technology and education can significantly affect the ways that ICT is established and used, and its impact in education. Sanchez et al. (2011) mentions that education quality is different for South Korea versus Chile, which affects the integration of ICT in these two countries. Specifically, they mention that South Korea has placed a large importance on the economic and symbolic value of teachers, whereas in Chile the importance of teachers is considerably less due to the military government during the 1970s. Significantly, this difference on the value of education affects a state’s importance on integrating ICT in education. Specifically, Sanchez et al. (2011) state that in Korea the state has placed an importance in integrating ICT into all areas of focus in the educational system. However, in Chile the state has not been able to fully incorporate ICT beyond the reach of public schools.

Price (2015) presents insights on present day challenges of ICT in education globally. He reminds his readers that ICT in education does not necessarily equate to ‘great quality of education’ (Price, 2015). Instead, that technology has paved the way for different possibilities of learning, but
the principles of learning instructions have not changed. Price (2015) indicates that technology does not pave the path for learning, but rather acts as a “mediator” to guide the process in teaching. Similarly, Umar and Abu Hassan (2015) postulate that the success of ICT in education is only effective if used appropriately. In their study of Malaysian teachers’ integration of ICT education, the researchers indicate that the success of ICT in education highly depends on the educators.

Chiao and Chiu (2018) argue that though computers have become more cheaper since 2009, the popular misbelief arose that greater computer access would close the gap on student achievement levels. However, according to OECD’s 2015 report, Chiao and Chiu (2018) indicate that the use of ICT does not necessarily always correspond to student achievement. This negative result in OECD’s report revealed to be true for subjects like reading, mathematics, and science (Chiao & Chiu, 2018)

2.3 Online Based ICT Education

According to Hartnett (2016), in the era of online technology, online learning offers students a larger choice on how they can go about studying, in terms of the pace and tools, as well as their interactions with online communities. Hartnett (2016) postulates that another benefit to online learning is equity of access to education. Specifically, those who are excluded from attending a physical educational space or are working individuals can have a chance to gain an education through online learning.

The development of online education is rooted in the conceptualization of distance education (DE) (Lee, 2017). With the emergence of the World Wide Web (WWW) in 1993 (Campbell-Kelly & Garcia Swartz, 2013), online education started in the mid-1990s (Lee, 2017). Hamilton (2016) indicates online education has gone into various streams such as DE as well as MOOCs. Though online learning can be accessed through a stationary desktop computer, it can be
accessed through learning technologies such as “web-tools, software applications, and mobile technologies that incorporate technological and instructive features and affordances of the Internet and the World Wide Web” (Kitsantas, 2013, p. 235).

A study by Waters et al. (2014) reveals that one of the greater academic obstacles of online learning is the absence of teachers. Based on Buddin and Zimmer’s (2005) study, Waters et al. (2014), mentions that without teacher-student interactions in a classroom setting, certain subjects like English or mathematics become a struggle for students. In addition, a Colorado report on online education revealed that students who switched from classroom settings to online schools saw their reading proficiency decrease from 58% to 51% (Waters et al., 2014). Not only is academic attainment a concern for elementary and secondary students enrolled in online schools, but online education can present cultural struggles for students from diverse social and cultural backgrounds. According to Goodfellow and Lamy (2009), learners engaging in online education will be confronted by other learners from diverse cultures. Through intercultural communication, the concept of “learning culture” is important to develop online cultures (Goodfellow & Lamy, 2009).

2.3.1 Online Education: dLearning: eLearning and mLearning

2.3.1.1 Definitions: Online Education; dLearning; eLearning; mLearning

Online education is accepted terminology for internet-based education, which has further developed into other online education streams through ‘eLearning’ and ‘mLearning’ (Kumar-Basak et al., 2018). In this literature review, eLearning (electronic learning) education through computer-assisted learning devices (computers) will be discussed first, followed by the use of mLearning (mobile learning). eLearning and mLearning are the technological devices that are used
for learning, which can be used to access online and non-online wi-fi programs as well. The
literature review of ICT in education examines math and English subjects, which can be learned
through using these technological devices, either online or not online as well.

Access to technological outlets differs on the basis of social class (Buzzeto-Hollywood et
al., 2018). Online education formats have significantly developed over the years, with
technological progress in lesson planning, video calls through Skype, forum postings, etc.
(Ghirardini, 2011). According to Waters et. al (2014) online education such as online charter
schools is a balance between home schooling and charter schools, where technology provides an
outlet for teaching as well as for learning.

Kumar Basak et al. (2018) presents eLearning and mLearning as sub-categories under the
larger umbrella of dLearning (digital learning). The latter is defined as learning that is facilitated
by the use of technologies (Kumar Basak et al., 2018). Kumar Basak et al. (2018) define eLearning
as education instructions that are supported by electronic outlets, such as a computer. Sangrà et al.
(2012) argue that eLearning has contributed to various commonly used terms such as, computer-
based learning, technology-based training, as well as the popular online learning. However, the
authors indicate that the term eLearning has been confused and misinterpreted to mean a type of
virtual campus or online courses, which does fall under the conceptualization of eLearning, but
should not be interpreted as the only modes of eLearning.

The content acquired through eLearning can be accessed through mobile technologies,
which falls under the definition of ‘mLearning’ (Kumar Basak et al., 2018; Traxler, 2005). Traxler
(2005) defines mLearning as “any educational provision where the sole or dominant technologies
are handheld or palmtop devices” (p. 262). These mobile technologies include mobile phones,
tablets, and PCs other than desktop computers (Traxler, 2005). In Traxler’s (2005) diagram below, PC and tablets are where eLearning and mLearning technologies overlap.

Figure 1: Overlap of mLearning and eLearning
Source: Reproduced from Traxler, 2005, p. 263.

2.3.2 eLearning: The Effectiveness of Computer Assisted Learning?

The literature on computer-assisted learning in education is largely comprised of studies which examine the effectiveness of computer-assisted learning in education rather than on the implementation or financing of this type of ICT. In examining the effectiveness of computer-assisted learning, many scholars have studied computer-assisted learning using math materials on low-income students and English learning materials.

2.3.2.1 Computer-Assisted Learning: Math Materials

The discourse on computer-assisted learning has mixed reactions. The majority of scholars do not necessarily suggest that computers are an “essential” instrument to learning (De Witte et al., 2015; Van der Kleij et al., 2015). In examining the effectiveness of computer-assisted learning on student math scores, De Witte et al. (2015) examined Gotit?!?, a learning tool for math amongst
secondary education schools in the Netherlands. The Gotit?! tool is designed to provide math exercises. From their study they observed that schools that had lower math attainment scores (measured from nationwide standardized exams), found and relied on Gotit?! more than schools than secondary schools with higher math attainment scores. This study confirmed that students from lower-socio economic households frequently used the tool. Furthermore, the study sheds light on the effectiveness of computer-assisted instruction in increasing student test scores due to the exercises this tool offers to students. Essentially, they suggest that computer-assisted instruction can be effective if there are many exercises because it leads to higher results in tests. However, this also depends on the role of teachers, and their adequate ability to teach students how to use a computer learning tool. De Witte et al. (2015) argue that it is important that policymakers and education directors allocate resources for teachers to get ICT training to teach students or else the computer becomes an instrument for delivering math rather than an instrument for learning.

Van der Kleij et al. (2015) examined feedback methods in a computer-based learning environment. They argue that feedback is one of the most important ways to increase student attainment. In their study of testing feedback mechanisms through computer-based learning, they looked at 40 studies. The results reveal that elaborated feedback (i.e., which meant to provide explanation) produced larger effect sizes (0.49), than compared to providing the correctness of the answers (0.05) or providing the correct answer (0.32). The study reveals that elaborated feedback was much more effective on student learning in high grades especially for subjects like math. In addition, Van der Kleij et al. (2015) indicate that feedback is only effective if it is not delayed. Feedback mechanisms such as providing the correctness of answers or providing the correct answer as automated responses do not show students their mistakes in the formation of their
answers. Significantly, this poses a problem for students relying on computer-based learning that only provides these two types of feedback.

Though the literature is skeptical on the use of computer-assisted learning in education, some of the literature presents the positive impact of computer assisted education. Specifically, various studies have tested the effectiveness of computer-based learning for math materials amongst lower-socio economic students. Milici et al. (2014) conducted a study of a non-formal education initiative called “School on Wheels” in Romania. The results from a 2013 study revealed that the School on Wheels initiative increased these youth participants to get involved in science, technology, engineering, and mathematics (STEM) related fields, as 12 out of 40 students from Metamorphosis Summer School participated in Olympiads the following year in science and math projects, in which 60% of teachers’ conceptualization of education technologies changed as they became supportive of computer-assisted learning in education (Milici et al., 2014).

Lai et al.’s (2015) study explored the effectiveness of a computer-assisted learning program (CAL) in math education on third grade migrant school students from lower-socio economic backgrounds in Beijing, China. The results from 4000 migrant school students revealed that an after-school CAL improved the students’ math scores by 0.15 standard deviations after two months of starting the program. In addition, the results revealed that students who had parents with no, or very little education, benefited from this program.

McManis and McManis (2016) conducted a study on 125 preschoolers from 18 low-income childcare classrooms in the US, to see the impact of using a touch-based PC tablet computer-assisted learning system called, the ISmartSmart learning system, on low-income preschoolers’ math (Bracken) and literacy (TOPEL) skills. Using controlled and target classrooms groups, a total of 55 students in the target classrooms (9 classrooms) were given access to the
ISmartSmart whereas 70 students in the control classrooms (9 classrooms) were not given access. The results from the study revealed that the target group gained more knowledge in math and literacy skills, contributing to stronger test scores. However, McManis and McManis (2016) indicates that if this type of computer assisted learning is provided to pre-schoolers, it does require the monitoring of these students by adults.

2.3.2.2 Computer Assisted Learning: English Learning Material

In the literature, various studies have been done on examining the effective quality of computer-assisted learning for English learning materials. The current literature presents positive perspectives on the effectiveness of computer-assisted learning for learners in need of learning English as a second language. In an earlier study, Tang (2010) investigated the impact of English learning websites on college students from the Wuhan University of Science and Engineering in China. The findings from this study reveals that those who spent two or more hours a day, covered the important aspects of English learning such as spelling, vocabulary, reading, and comprehension (Tang, 2010).

In a similar study, Christian et al. (2017) discuss the importance of good quality English learning websites for English learners in Jakarta, Indonesia. The study used WebQual, an instrument used to measure the quality of websites, to investigate the quality of BAHASO, an English learning website developed for adults in Jakarta. The participants used in this study revealed that BAHASO is a helpful website, not because of its exercises, but mainly because of service interaction. Specifically, the service interaction quality, usability and information quality contributed to positive impact of BAHASO for adult English learners.
Mahmoudi et al.’s (2012) study evaluated the effectiveness of Computer-Assisted English Language Learning (CAELL). In this study of 30 Iranian post-graduate students from a Malaysian university through questionnaires and vocabulary tests, the results revealed CAELL is effective. One part of the study even examined English learning among these participants through websites such as Go4English.com, Englishvocabularyexercises.com and Englishlearner.com. Most of the students in this study revealed that they were eager to learn English through websites as they felt it makes their language learning easier and enjoyable. Furthermore, students’ vocabulary increased. However, Mahmoudi et al.’s (2012) study revealed students’ attitudes are vital in the performance outcomes of language learning.

2.3.3 mLearning: The Use of Mobile Technology in Learning

In the current literature, the use of mobile phones to assist learning has become an interest among mobile users around the world (Berge et al., 2013; Crompton & Traxler, 2016). In Asia, mobile phones have become a significant product amongst citizens (Donald et al., 2010; Tharoor, 2007). Not only are phones used for the purposes of communication, but they have become used as tools in the facilitation of learning through apps and videos (Mobinizad, 2018). However, researchers in education question whether mobile phones are effective learning tools. Mobinizad (2018) argues that the use of mobile technologies could hinder the attention of learners, leading to distraction, or not all learners are confident coping with new technology for language learning.

Many scholars have looked at how mLearning could assist students in gaining knowledge and the outcomes of this modality of education technology. Based on a 2007 to 2008 study by Kam et al. (2009) in rural India, Valk et al. (2010) indicate how mobile phone games could increase the knowledge of the English language among low-income rural students. With a project that
spanned 38 days with two-hour sessions per day, the games tested the students’ listening comprehension, word recognition, spelling and grammar. The results of the program revealed an increase in the English language. Specifically, pre-tests and post-tests of English were done, where the mean pre-test results were 5.2 out of 18, which increased to 8.4 in the post-test results. However, this does not equate to quality education because many students’ needs are ignored, which provides an unfair disadvantage to students certain differing abilities.

Liu et al. (2014) investigated the potential benefits of using mobile technologies such as the iPod Touch for English learners amongst elementary and secondary school levels in the US. The research looked at the implementation of a mLearning initiative in a large school district in the southwest US from 2010 to 2012 (Liu et al., 2014). Part of the results revealed that 92.1% (end-year result) of students found audiobooks helpful and 81.6% (end-year result) found voice recorders especially resourceful. However, the study revealed that there were challenges with this mLearning initiative with regards to technical problems with using an iPod touch as well as with the expectation for teachers and staff to conform to using this technology within this initiative.

### 2.4 Non-State Private Actors

This thesis is centered on the role of NSP actors as implementers and funders of ICT initiatives in education. This section will present a brief overview of NSP engagement and implications on privatization in education and various typological distinctions of NSP actors in education that are central in the implementation and financing of ICT education initiatives regarding this study. Relevant to this study, there is increased activity by philanthropic actors in the regions (Adhikary, 2019; Ball, 2007; Jung & Harrow, 2015; Srivastava, 2016; Srivastava & Baur, 2016). According to Ball (2007), ‘new philanthropists’ are engaging in a type of governance
which is defined by partnerships and social networks. Srivastava and Baur (2016) state that global philanthropic engagement in education in the Global South is influenced by numerous factors, including:

(a) macro-and domestic policy contexts characterized by the tail-end of EFA; (b) the post-2015 discourse; (c) the disenchantment with official development assistance (ODA), and (d) the growing presence of increasing arrays of international and Southern non-state private actors, including those with for-profit and commercial motives (p. 434).

As my thesis examines the implementation of ICT education initiatives by NSP actors, it is important to clarify how this topic fits into broader discourse on NSP engagement and privatization and education. Privatization is understood as a “process which can be defined as the transfer of activities, assets and responsibility from government, public institutions, and organizations to private individuals and agencies” (Abrol, 2016, p. 1). NSP actors in education may be involved in establishing an education sector even with the state as well (Robertson et al., 2012). Ball (2007) states that the public sector opens up to the private sector in terms of ‘expertise’, ‘innovation’ and ‘management’, while the private sector builds ways to increase businesses, funding, and a return on investments.

In education, privatization can occur because of NSP engagement in four main areas which includes the “provision, financing, management, and regulation of education” (Read & Srivastava, 2017). According to Srivastava (2010), examples of the privatization of/in education can include activities such as:

Low-fee private schooling (e.g. Ghana, India, Nigeria, Pakistan), private supplemental tutoring, publicly and privately-financed vouchers and subsidies enabling private or government-assisted private school choice (e.g. Chile, Colombia, India, Pakistan), public-private and multiple stakeholder partnership agreements including for-profit providers, and regulatory frameworks favouring increase in private schools (e.g. India, Madagascar, Malawi, Nigeria (p. 522).

Significantly, this reveals that NSP engagement and potential implications of the privatization of education are diverse in the Global South, especially in the delivery of education.
2.4.2 Defining and Contextualizing NSP Actors in Education

There is a large array of definitions of NSP actors in the literature. Some definitions of NSP actors vary depending on the sectors of involvement (Josselin & Wallace, 2001). NSP actors in education can be classified as actors independent of or outside state governments that are organized with the incentive to have a social or economic influence (Robertson et al., 2012; Robertson & Komljenovic, 2016; Srivastava & Walford, 2016; Steer et al., 2015). Menashy (2016), indicates that the rise in a global society has largely been a result of the rise in private corporate actors, especially foundations as they try to tackle global issues.

According to Robertson et al. (2012), the spaces for education governance are multilateral, specifically through local, regional and national scales. In these spaces of educational governance, many actors such as profit-oriented firms, philanthropies, NGOs and religious organizations may participate in these levels. Since the turn of the 21st Century, there have been an increase in NSP actors, especially with corporate and profit-oriented motives (Srivastava & Read, 2020).

NSP actors can be distinguished by their organizational type and profit status (Srivastava & Read, 2019a; Steer et al., 2015). NSP actors are characterized as having either three main profit motives or statuses: profit, not-for-profit, and hybrid (Srivastava & Read, 2020; Steer et al., 2015; Weiss et al., 2013). Srivastava and Read (2020) argue that profit-making activities vary in different contexts. Profit-motived NSP actors have the incentive to have a financial return. However, the authors, indicate that in basic education, private sector investors occupy a fuzzy stand on “profit.”

As certain NSP actors in education are profit-oriented, Georgeson and Maslin (2018) question whether they are compatible with the Sustainable Development Goals (SDGs) framework. The SDG framework has 17 goals, SDG 4 being on equitable quality education for all. The discussion of profit-oriented NSP actors have led to the discussion of these actors possibly
violating the basic human right to universal free and compulsory education (Aubry & Dorsi, 2016; Ball & Olmedo, 2011).

Non-for profit NSP actors are motivated by social impact without the expectation of financial return or profit. Examples are private foundations, trusts or charities (Srivastava & Read, 2019a). According to Bulkey and Burch (2011), some not-for profit organizations may receive funding from foundations that are motivated to promote entrepreneurial creativity in public education, specifically urban schools that serve low-income minority students. Hybrid actors have the expectation to make a social impact but with profit (Srivastava & Read, 2019a). Impact investors are an example of hybrid actors. Doherty et al. (2014) state that hybrid actors have the notion of “opportunity and mission; capital and the acquisition of financial resources; and people (mobilization of human resources)” (p. 420).

Srivastava and Read (2019a) argue that typologies of NSP organizations is a grey area of discussion in the current literature, significantly affecting clear understandings of the various organizational types of NSP actors in education globally. Significantly, this results in a lack of transparency, consequently resulting in a myriad of unclear classifications (Srivastava & Read, 2019a). After reviewing the literature on the various types of NSP organizations, Srivastava and Read (2019a) present seven organizational forms that were relevant in operationalizing the regional database which was the source of data for this study. They are: charity/NGO, CSR initiative/unit, impact investor, network service organization or platform, private foundation, social investment firm/fund manager/fund advisor/ or investment consultancy service, and other (see Table 1). This thesis specifically examines private foundations and impact investors operationalized in the typology below.

<table>
<thead>
<tr>
<th>Table 1: NSP Organizational Typological Classification</th>
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<td>Organizational Type</td>
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</table>

This thesis specifically examines private foundations and impact investors operationalized in the typology below.
<table>
<thead>
<tr>
<th><strong>Charity/NGO</strong></th>
<th>Not-for-profit; not part of the public sector but may receive public-sector funds; led by an independent board of trustees or CEO; rely primarily on external funding to operate.</th>
<th>Action Aid International, Education Girls, Fred Hallows Foundation, Little Heroes’ Dreams, Pratham Foundation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CSR Initiative/Unit</strong></td>
<td>Social responsibility programming/division or unit of a private corporation (not established as a corporate foundation), Uses own financial resources, contributions, own funds and/or employees volunteer. May be legally mandated (e.g., India).</td>
<td>CSR Initiatives/Units of: Bharat Petroleum Corporation Ltd, Coca Cola, Credit Suisse, Mahindra Group, Singtel, UBS</td>
</tr>
</tbody>
</table>
| **Impact Investor** | Ideal Type (GIIN, 2018)  
- Intentionality: Aim to Address issues of common good (social or environmental)  
- Expectation of return on investments with a range of returns (at minimum a return of capital)  
- Use a range of financial instruments (or made across ‘asset classes’)  
- Commitment to measure impact. Additional Criteria: Must be organizations, use own financial resources (not a broker); can be not-for-profit oriented; exit strategy (intentional or actual); public actors excluded | Accicon, Acumen, Gray Matters Capital, Omidyar Network Services |
| **Network Service Organization or Platform** | May be membership-based organizations, associations, fora; platforms or for connecting donors or investors to causes or potential investees (can include crowdfunding platforms); networking spaces (includes physical and/or online spaces). May be for-profit, hybrid, or non-profit. | GlobalGiving, Indian Angel Network, SharingValueAsia, Vibha Trust |
| **Private Foundation** | Ideal Type (Marten & Witte, 2008)  
- Not-for-profit oriented  
- Not part of the public sector  
- Uses own financial resources (unlike charities or NGOs)  
- Led by an independent board of trustees or CEO  
- Aim to face issues for common good  
- Can be grant-making or operational (implement own programs or in cooperation with others  
Includes: independent private foundations (family/individual), corporate foundations, and community foundations (not publicly-supported) | Azim Premji Foundation, Bill and Melinda Gates Foundation, DBS Foundation, Dr. Reddy’s Foundation, EdelGive Foundation, Michael and Susan Dell Foundation, Tech Mahindra Foundation, ZeShan Foundation  
Hybrid Foundation: Nippon Foundation |
| **Social Investment Firm/Fund Manager/Fund Advisor or Investment Consultancy Service** | May use own funds and make direct investments; manage investment funds for clients; serve as brokerage firms; provide investment advice or consultation. Include a range of expected rates of return on Investment and use a variety of financial instruments. Clients of social investment firms, managers, or advisors usually include philanthropic organizations, social entrepreneurs, or hybrid organizations with a social purpose, Can be for-profit, hybrid, or non-profit. | Asia Value Advisors, Calvert Impact Capital, WISE Philanthropic Advisors |
| **Other** | Includes a range of actors, such as: consultancy firms; multi-national corporations and local corporations and local corporate entities; think tanks, education-oriented institutes (e.g., research centers, post-secondary institutions, etc.,) incubators. May be for-profit-hybrid, or non-profit. | Ayala, Boston Consulting Group, Chilasa, FHI 360, Indian School of Development Management |

**Source:** Reproduced Table from Srivastava and Read (2019a), p. 26-27.
2.5 Target Funders: Private Foundations and Impact Investors

In this study, private foundations and private-sector impact investors are the main focus. They are the focus of the discussion below.

2.5.1 Private Foundations

Srivastava and Oh (2010), postulate that the role of private foundations in the financing and delivery of education initiatives has been increasing significantly in the Global South but it is under-researched. Marten and Witte (2008) argue that there are two classifications of private foundations. These include: 1) foundations that are grant makers (financing projects), and 2) foundations that are independent to implement and finance their own projects. According to Marten and Witte (2008), 45% of US grants went directly to rapidly emerging economies, such as China, India, South Africa, and Brazil. Srivastava and Oh (2010) argue that the role of private foundations is becoming one of larger debate, and some, like the Bill and Melinda Gates Foundation and the David and Lucille Packard Foundation are “mega-donors”. They argue that private foundations are not neutral actors, in other words, foundations are not apolitical. According to Anheier and Leat (2013), foundations play an equally important role to the state, however, they argue that they are not understood well by the greater public. Anheier and Leat (2013) indicate that foundations provide financial aid to governments, and for civil society. For founders, foundations contribute as they “respond to existing demand and provide (actual and potential) philanthropists with a legal instrument for expressing and pursuing their philanthropic interests” (Anheier & Leat, p. 453).

Sulla (2007) reported that 45% of international grant from American foundations goes to emerging markets such as Russia, China, India, Brazil, Mexico and South Africa, and 23% of
European foundations targeted developed countries. However, Reckhow and Synder (2014) assert that foundations should be taken under a critical view, as they are powerful and may engage in privatizing public education. Scott (2009) states that venture philanthropists, specifically foundations, have been instrumental in funding a variety of initiatives in urban school districts in the US, with charter schools as an example. Scott (2009) reminds one to recognize that there is a reimagining of venture philanthropists as they try to reshape public education, especially for lower-socio economic students of colour.

Ball and Junemann (2011) argue that philanthropic engagement is transforming in their methods of impact. They indicate that new philanthropy has transformed where there is an emphasis on a “direct relationship” between “giving” to “outcomes.” According to Ball and Junemaan (2011), new philanthropy has transformed into a “hands on” approach to donations, where philanthropists would like to participate in taking an active role in the way projects are managed. They discuss about “strategic philanthropy”, whereby philanthropists are trying to get governments engaged in “innovative projects.”

Fejerskov and Ramussen’s (2016) study examines the shifting practices of grant-giving by Danish private foundations in an international context. They argue that the practices of grant-giving by private foundations have gone in various directions, from ‘responsive’ and bottom-up approaches to a ‘proactive’ approach. The ‘proactive’ or top-down approach of grant-making involves private foundations taking the lead, where they will initiate contact first with an organization that matches with their foundation’s aims and objectives (e.g., social justice), as well as designing social justice interventions themselves (Fejerskov & Ramussen, 2016).

Similarly, Reckhow & Snyder (2014), argue that there has been a shift in the funding policies amongst the top education philanthropists in the US. Specifically, there has been a decline
of funding for traditional public education institutions. They state that education foundations are funding jurisdictional challengers (organizations that provide alternative to institutions in the public-sector). Furthermore, they mention that certain foundations have become interested in funding advocacy-based projects rather than on ‘traditional’ based projects, due to the notion that funding advocacy-based projects would likely increase a higher chance of larger investment returns.

The role of foundations as grant givers has been crucial to ICT related projects. Caswell et al. (2008) looks at the new DE technologies such as OpenCourseWares (OCWs), a technological open access outlet that has varieties of education materials. The OCWs are used at the Massachusetts Institute of Technology, as well as other universities such as the Open University and Korea University. However, Caswell et al. (2008) argue that OCWs require a significant amount of funding. Private foundations such as the William and Flora Hewlett Foundation and the Andrew W. Mellon Foundation have been pivotal in the funding of OCWs on a global level (Caswell et al., 2008). The funding received by a few of these foundations cover the costs of software, hardware, hosting costs, and human resources. According to Caswell et al. (2008) there are over 2,500 open access courses around the world, and the funds to cover the costs will increase over time.

Similarly, Strasser and Khare (2017) discuss the interest that private foundations have taken interest in funding open-access resources as a way to increase the visibility of their role as funders and as to display their potential impact. Their financial contributions have led to many private foundations creating their own open access policies, the Bill and Melinda Gates Foundation as one example. Strasser and Khare (2017) indicate that Gordon and Betty Moore Foundation in
2016 pushed for the implementation of open access policies. Since 2001, it has had an annual budget of USD $300 million, granting over 2,400 per year to open access resources.

2.5.2 Impact Investment and Impact Investors

One definition of impact investments is “investments that are primarily made to create tangible social impact, but also have the potential for financial return on the investment” (Clarkin & Cangioni, 2015, p. 138). GIIN (2018) states that impact investors will make their investments into companies, organizations and funds. According to Jackson (2013), the definition of impact investing involves three components: intent, impact, and theory of change. The intent component refers to the investors’ intent to accomplish an impact. The second component refers to evidence of the impact. Jackson (2013) argues that there should be a third component, which is the “theory of change”, which signifies how investors conceptualize their expectations on the capital they are investing in enterprises or projects. In other words, it is about knowing how to maximize the investors’ results and how these results match expectations (see Figure 2 below).
The GIIN (2018) Annual Impact Investor Survey presents insightful data on impact investor activities, with data based on a sample of 229 impact investors. There were many reported motivations for impact investment. The first motivation expressed by impact investors was mission. In this survey, 98% of impact investors expressed it is their mission as a responsible investor to make an impact. In addition, 97% believed that impact investing is as an “efficient” method to ensure impact goals. Furthermore, the survey states that 80% of impact investors from their sample expressed the importance for transparency on impact strategies in order to prevent “mission drift.”

O’Donohoe et al. (2010) argue that impact investing differs from socially responsible investments. While socially responsible investments are meant to reduce negativity in social contexts, impact investing is constructed with the goal of improving and creating a social or environment impact along with the intention to have a financial return. In Figure 3 below, O’Donohoe et al. (2010) outline the intentions of impact investors, which include: providing...
capital, business designed with intent, to generate positive social and/or environmental impact, and the expectations of financial returns.

![Investments Intended to Create Positive Impact Beyond Financial Return](image)

**Provide Capital**
- Transactions currently tend to be private debt or equity investments
- We expect more publicly traded investment opportunities will emerge as the market matures

**Expect Financial Returns**
- The investment should be expected to return at least normal principal
  - Donations are excluded
  - Market-rate or market-bearing returns are within scope

**Business Designed with Intent**
- The business (fund manager or company) into which the investment is made should be designed with intent to make a positive impact.
- This differentiates impact investments from investments that have unintentional positive social or environmental consequences

**To Generate Positive Social and/or Environmental Impact**
- Positive social and/or environmental impact should be part of the stated business strategy and should be measured as part of the success of the investment

*Figure 3: Intentions of Impact Investors*
*Source: Reproduced from O’Donohoe et al., 2010, p. 7.*

There is a range of impact investing actors, including philanthropic foundations, commercial financial institutions, and high net-worth individuals (O’Donohoe et al., 2010). These actors invest on a multilateral level in multiple regions and various business sectors, as well as investing with a variety of impact aims (O’Donohoe et al., 2010). Jackson (2013) argues that impact investors can:

- Design and execute private debt deals, providing loans, guarantees, and other debt instruments, as well as equity and quasi-equity, to funds, enterprises and projects that aim
to provide the poor and marginalized with employment, income and affordable products and services, including housing, food, health care, education, energy and environmental protection (p. 97).

Significantly, this reveals that impact investors are diverse and multilateral, as they invest not only in education, but in other sectors that are for the greater common good of a society. Cetindamar and Ozkazanc-Pan (2017) argue that impact investors are investing to make a social impact, and these social impact investing types range between “venture capital, venture philanthropy, crowdfunding, and microfinance” (p. 257). There are diverse impact investment types, which range between debt, equity and venture capital (O’Donohoe et al., 2010). According to Jackson (2013), there is a growth in how syndicates of investors work together to bring their funds in one investee enterprise or projects while also ensuring different types of expectations on financial returns.

2.6 Summary of the Literature Review

This chapter presented a review of literature on ICT in education and on NSP actors operating in education in the Global South. It also focused on private foundations and impact investment and investors. Overall, a number of studies examine ICT in education, specifically through eLearning and mLearning. These modes of learning were examined in the literature of math and English learning materials, as the majority of initiatives in this thesis are centered on these subjects. However, some of those studies are not concentrated on education in East Asia and the Pacific and South Asia. There are very few studies on other modes of ICT in education, using other technologies such as television or radio outlets.

Significantly, this chapter revealed that the literature is quite limited in its discussion on the implementation and financing of ICT initiatives by NSP actors, especially in the regions of East Asia and the Pacific and South Asia. The literature on NSP actors focused a great deal on the
conceptual understanding of NSP actors, with studies on private foundations and impact investors. Specifically, the latter focused on the funding mechanisms of private foundations and impact investors, and their application in education. However, the literature is scant on studies of private foundations and impact investors financing ICT initiatives per se.
Chapter 3: Methods and Research Design

The purpose of Chapter 3 is to present the methods and research design for this MA study. It presents the research questions and sub-questions, background to the larger research project in reference to this MA study, the processes involved in the development of the research questions, design and data analysis methods, and specification for each question.

3.1 Research Question and Sub-Research Questions

This MA study is structured as a descriptive case study research design and uses basic descriptive statistical analysis to represent data on the funders, implementers, and ICT initiatives under analysis drawn from a larger regional-level database. The main research question is: *What types of ICT initiatives in education are implemented and funded by non-state private actors in East Asia and the Pacific and South Asia?*

The sub-question(s) are as follows:

1) Comparing ICT activity in East Asia and the Pacific and South Asia:
   a) Across the two regions generally, are there different geographic concentrations of ICT programming activities (i.e., main and additional programming activities of the initiatives)?
   b) In which education sub-sectors are ICT initiatives most prevalent?
   c) In which countries are the ICT initiatives operational in East Asia and the Pacific and South Asia?
   d) Which organizational types are implementing the ICT initiatives? How many implementers are there per ICT initiative? What is their profit status?
e) How many private foundations and impact investors are financing the ICT initiatives? How many collective funders (target funders plus co-funders) are there per initiative?

### 3.2 Background of the Larger Research Project on Mapping NSP Actors in Asia

This MA research stems from a larger research project on NSP actors financing education initiatives in East Asia and the Pacific and South Asia headed by Prof. Prachi Srivastava. The larger project aims to map the target geographies, education sector priorities, and initiatives funded by NSP actors in East Asia and the Pacific and South Asia, with a focus on private foundations and impact investors. That project had two main exercises. The first was the construction of a regional-level database on NSP actors financing education initiatives in East Asia and the Pacific and South Asia. The second was the construction of the Invest-ED Tool, an original reporting and data collection tool to enable transparent reporting of education sector investment by NSP actors, with a particular focus on philanthropic and impact investing actors (Srivastava & Read, 2019b).

The regional database compiles publicly available data on education initiatives funded by NSP actors in East Asia and the Pacific and South Asia. The database includes a range of actors that were classified using the typology constructed for the research project mentioned above. The NSP actors in the database were considered the ‘target funders’ for the larger project. They were extracted from five relevant regional and global sources or network service/support organisations.

For this analysis, the ‘target funders’ refer to the sub-sample of private foundations and impact investors.

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5 The Invest-ED Tool was piloted with relevant NSP actors in India, Japan, and Singapore. It is not used in this MA study. Details are presented for background information.

6 Target funders were extracted from: Asian Venture Philanthropy Network membership database, Center for Education Innovations programs database (tracing initiatives to funders), Forbes Asia’s 2017 Heroes of Philanthropy List (tracing individuals to philanthropic organisations), GIIN membership list and The Asia Foundation donor list.
investors extracted from the larger regional database. Implementers refer to organizations that created or delivered an initiative. The implementer may be a third party, or it may be the same as the funder. In some instances, the initiative and implementer may be the same. A case from the data, for example, is a mobile learning application.

At the time of conducting research for this MA study, data collection, cleaning, and analysis on the full database had not been completed. At that time, the full database included ~650 non-state private funders (i.e., ‘target funders’), ~5500 co-funders, and ~850 education initiatives. To be included in the dataset, initiatives had to be operational between January 2015 and December 2017, although they could have started before and ended after this date. This was to ensure the most up-to-date data collection during the construction phase of the regional database.

The database was developed in Airtable, an online cloud service that allows one to create manipulative databases. Specifically, there are data on funders and co-funders of the initiative, implementers of the initiatives, the launch country and other countries in which the initiative was operational, the duration of the initiative, the education sub-sector specific to the initiative, the thematic programing area, specific activity areas addressed by an initiative, among other fields. Initiatives in the database were coded following a codebook developed for the larger project according to 11 main programming areas, including ICT.

Each programming area had further codes as descriptive tags for activities broadly describing individual initiatives. For the ICT programming area, individual initiatives were coded according to 8 activities: 1) computer-assisted instruction/learning programs/products and

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7 Codes for programming areas and activity types were developed by the principal investigator and the research team. The development of codes involved collating relevant schema from existing sources, i.e., Center for Education Initiatives (2015) programs database coding framework and the World Bank (2016a; 2016b) sector and theme taxonomies. This was followed by a process of inductive application to arrive at the coding scheme for the database.
services, 2) computers and tablets, 3) digital classrooms, 4) online learning portals; online school/centre, 5) MOOC instruction, 6) multimedia services and products including AV and non-computer media, 7) school Wi-Fi broadband/initiatives, and 8) STI activities.

3.3 Extracted Dataset for Analysis

The analysis here is a first run on a sub-sample of the data from the regional database and is intended to provide direction to the analysis in the full dataset. It is presented as a working analysis to inform the larger project, and not as a full and final analysis of the full dataset. This MA study uses data extracted from the larger regional database on non-state private investment in education in South Asia and East Asia and the Pacific described above. To be included in the sub-sample for analysis in this study the private foundation and impact investor target funders had to be based in either East Asia and the Pacific and/or South Asia and finance education initiatives in at least one of the two regions.

At the time of analysis for this study, the project team was conducting a focused analysis of ~100 NSP actors classified as private foundations and impact investors, and that were financing initiatives in the two regions. Those funders could also be based in other regions. This MA study is based on a sub-sample of 70 private foundations and impact investors from that dataset. The funders for this study had to have a regional or head office in either one of the two regions, in addition to funding initiatives there. They are referred to the target funders in this analysis.

3.4 Research Design and Analysis Methods

Although this study utilizes basic descriptive statistics for analysis, I use a descriptive case study approach to structure the study. The study aims to analyze and reveal the significant attributes found in the implementation and financing of ICT initiatives in East Asia and the Pacific
and South Asia. According to Yin (2009), a descriptive case study entails the action to *describe* the phenomenon particular to a case in a study. In describing the phenomenon of the study, it requires to ask questions that are formulated in a “what”, “where”, and “when” form (Yin, 2009). The phenomenon of this case study rests on analyzing the types of ICT initiatives that are implemented, and most importantly, the actors involved in the implementation and financing of the ICT initiatives.

The case compares the attributes of the ICT initiatives (the programming activity, education sub-sector, countries of operation) and the types/number of implementers and number of private foundations versus impact investors financing the ICT initiatives between East Asia and the Pacific and South Asia. In doing so, I am identifying the similarities and differences between these regions in this study. Choosing a descriptive case study design is important because the aim of the study is to present and identify and describe the frequencies of data with regard to the ICT initiatives and the NSPs actors involved in the implementation and financing of these initiatives.

### 3.4.2 Target Funders Sub-Sample

The target funders in this study were the sub-sample of 70 NSP actors classified as private foundations and impact investors in the larger database, and that had both a regional presence in East Asia and the Pacific or South Asia (i.e., a regional office or headquarters in at least one country in either region) *and* that financed education initiatives in either one or both regions between January 2015 and December 2017. The private foundations and impact investors were operationalized according to the typology for the larger database (see Section 1.2 above).

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8 It is important to note that analysis of the larger database had not been completed at the time that the sample for this MA study had been extracted. It is possible that there may be minor alterations in subsequent publications based on the database as a result.
3.4.3 Narrowing the Sampling Frame: Establishing the Target Funder and ICT Initiatives

Two worksheets that were created in and exported from Airtable were essential to conducting analysis for this study. The first was a target funder worksheet for the sub-sample of private foundations and impact investors under analysis as described above. The second was a worksheet on ICT initiatives funded by these target funders. This was done by extracting initiatives from the larger worksheet that met the following criteria:

1) Coded as an ICT initiative for the main programming area
2) Launched or operational in either East Asia and the Pacific or South Asia
3) Include at least one target funder from the sub-sample of 70 funders

This resulted in 22 ICT initiatives (8 in East Asia and the Pacific, 14 in South Asia) based on the data available at the time of analysis (see Table 2). Table 2 presents initiatives according to region of operation. For a more detailed account of the initiatives, see Tables 3 and 4, Chapter 4.

Table 2: Sample of East Asia and the Pacific and South Asia ICT Initiatives Under Analysis

<table>
<thead>
<tr>
<th>Region of Operation</th>
<th>Initiative Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>East Asia and the Pacific</td>
<td>Cha Ching; Digital Data Divide; Indigenous Scholarship Portal; Knowre; Math Dali; Math Pathways; RIID; STI Mobile Schools</td>
</tr>
<tr>
<td>South Asia</td>
<td>Career Express; Connected Learning Initiative; Digital Education Programme E-Shala; Galli Galli Sim Sim; Integrated Approach to Technology in Education (ITE); Khan Academy Hindi; mGuru; Mobile Computer Lab; Nalanda Project; Nawalgahr E-Library; Right to Read, English Bolo; Vidya Helpline; Virtual Classroom Tuition Project; Zaya</td>
</tr>
</tbody>
</table>

3.4.4 Additional Data Collection

I conducted additional research on the aims and objectives of each initiative, as well and on additional insights on the organizational types of the implementers and funders in this study. The collection of these data was from publicly available sources, including: the initiative website,
implementer and funder websites, annual reports, and external sources such as CrunchBase, YouTube videos, and news stories. Tracking co-financers and implementers in the larger project and in this analysis was difficult. A thorough attempt was made to track as many relevant actors as possible for the time period under analysis. However, this analysis and the larger project were dependent on public reporting by the different actors involved. It is possible that there are omissions due to limited public reporting.

3.5 Specifications to Answer Research Questions

Sub Question 1: Comparing ICT activity in East Asia and the Pacific and South Asia:

a. Across the two regions generally, are there different geographic concentrations of ICT programming activities (i.e., main and additional programming activities of the initiatives)?

This question seeks to explore the types and programming activities, and the distribution of ICT activities across the regions. In doing so, it requires an analysis of the data for “main programming activity” and “all programming activities.” The main programming activity was coded as the activity most central to the initiative. All programming activities refers to all additional activities addressed by that initiative (Tables 3 and 4 in Chapter 4). This was essential because initiatives often had a variety of associated activities. From the larger research project, there are a variety of programming activities. The list of ICT programming activities under analysis for this thesis includes: 1) computer-assisted instruction/learning programs/products and services, 2) computers and tablets, 3) digital classrooms, 4) MOOC instruction, 5) multimedia services and products including AV and non-computer media, 6) online learning portals; online school/centre,

9Compiles financial and operations data of private and public companies and other organizations.
7) school Wi-Fi/education broadband initiatives and 8) STI activities. Additional activities of the initiatives could include codes from across any of the 11 programming areas as well.

b. Which education sub-sectors are ICT initiatives most prevalent in?

The larger database coded for the following education sub-sectors: early childhood education, primary education, secondary education, tertiary education, adult basic and continuing education, workplace development skills, and initiatives that could not be identified according to its sub-sector were classified as “missing data.” The operationalization of education sub-sectors followed the World Bank education sub-sector classifications. There were ICT initiatives under analysis that were operational in more than one sector.

c. In which countries are the ICT initiatives operational in East Asia and the Pacific and South Asia?

In answering this question, the analysis combined the launch country and other countries data. It classified the regions as well. Regional groupings in the larger database followed the World Bank classifications. Only one ICT initiative was operational outside of South Asia and East Asia and the Pacific.

d. Which organizational types are implementing the ICT initiatives? How many implementers are there per ICT initiative? What is their profit status?

These questions seek to understand the implementers that were involved in the implementation of ICT initiatives in East Asia and the Pacific and South Asia. The implementers in this study were classified according to the organizational typology for the larger database (Srivastava & Read, 2019a). The next question required to clarify how many implementers there were per initiative. The third question required to examine the profit status of the implementers in this study. The database coded the profit status of implementers as: profit, not-for profit, or hybrid.
e. How many private foundations and impact investors are financing the ICT initiatives?
How many collective funders (target funders and co-funders) are there per initiative?

I examined the target funders of the ICT initiatives in the sub-sample and compared the numbers of private foundations and impact investors. The second question required to examine how many collective funders funded the initiatives. The collective funders refer to the total number of target funders and co-funders financing the initiatives.
Chapter 4: Results

4.1 Initiatives Analysis

The following sub-sections present analysis on the 22 initiatives extracted for this study. The analysis examines the main and additional activities addressed by the initiatives, main education sub-sectors, and countries of operation in both regions. Tables 3 and 4 present the attributes of the initiatives under analysis, their regions and countries of operation, the main and additional ICT programming activities addressed in the initiative, implementers that could be traced, and the target funders. This is followed by Figure 4 which addresses the seven types of ICT programming activities that are present as either a main or an additional programming activity for the initiatives in this study.

The additional activity(ies) column presents the activities that were coded beyond the ICT education program area, i.e., in any of the program areas coded for in the database. Additional activity types were coded from across all the programming areas in addition to the ICT program area. The following program areas were coded in the database, in addition to ICT: access to education; advocacy and policy; curriculum and extra-curricular support; education facilities; education financing; education governance, school-based management; private sector delivery of education; skills, workplace transition, and continuing education; standards, student assessment, and student support; and teachers and school leadership.
<table>
<thead>
<tr>
<th>Initiative Name</th>
<th>Regions of operation</th>
<th>All Countries of Operation</th>
<th>Main Activity</th>
<th>Additional Activity(ies)*</th>
<th>Main Education Sub-Sector(s)</th>
<th>Implementer(s)</th>
<th>Target Funder(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cha Ching</td>
<td>East Asia and the Pacific</td>
<td>Indonesia, Malaysia, Philippines, Singapore, Taiwan, Thailand, Vietnam</td>
<td>Online Learning Portals; Online School/ Centre</td>
<td>Computer-Assisted Instruction/ Learning Programs/Product and Services, Extra-Curricular Activities, Life Skills and Personal Financing Training</td>
<td>Primary Education and Secondary Education</td>
<td>Cartoon Network Foundation, Prudence Foundation</td>
<td>Prudence Foundation</td>
</tr>
<tr>
<td>Digital Divide Data</td>
<td>East Asia and the Pacific</td>
<td>Cambodia</td>
<td>Computer-Assisted Instruction/ Learning Programs/ Products and Services</td>
<td>Computers and Tablets, Learning Programs, Employment Skills Program, Long Term Technical/Vocational Course, Mentorship/Interns Hip/Job Placement, STI Activities</td>
<td>Workforce Development skills</td>
<td>Amazon Web Services, Digital Data Divide, Intel Corporation</td>
<td>Rockefeller Foundation</td>
</tr>
<tr>
<td>Indigenous Scholarship Portal</td>
<td>East Asia and the Pacific</td>
<td>Australia</td>
<td>Online Learning Portals; Online School/ Centre</td>
<td>Increasing or Sustaining Enrollment, Programs Targeting Tribal or Indigenous Groups, Programs to Improve Access and Equity in Education, Scholarships and Financial Aid, Transitional Support</td>
<td>Tertiary Education</td>
<td>Aurora Education Foundation</td>
<td>Macquarie Group Foundation</td>
</tr>
<tr>
<td>Knowre</td>
<td>East Asia and the Pacific, North America</td>
<td>South Korea, United States</td>
<td>Computer-Assisted Instruction/Learning Programs/Products and Services</td>
<td>Extra-Curricular Activities, Learning Materials For Students, Math Materials, Student Assessment and Progress</td>
<td>Secondary Education</td>
<td>Knowre, Sylvan Learning</td>
<td>D3 (D3 Jubilee)</td>
</tr>
<tr>
<td>---------------</td>
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<td>-------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>Math Dali</td>
<td>East Asia and the Pacific</td>
<td>Philippines</td>
<td>Computer-Assisted Instruction/Learning Programs/Products and Services</td>
<td>Extra-Curricular Activities, Tutoring/private Tuition, Math Materials, Student Assessment and Progress</td>
<td>Primary Education, Secondary Education</td>
<td>Knowledge Channel Foundation</td>
<td>Lopez Group Foundation Inc.</td>
</tr>
<tr>
<td>Math Pathways</td>
<td>East Asia and the Pacific</td>
<td>Australia</td>
<td>Online Learning Portals; Online School/ Centre</td>
<td>Computer-Assisted Instruction/Learning Program/Products and Services, Maths Materials, Parental or Community Engagement in Support of Students, Student Assessment and Progress, Teacher Training</td>
<td>Primary Education, Secondary Education</td>
<td>Math Pathways</td>
<td>AERA VC</td>
</tr>
<tr>
<td>RIID</td>
<td>East Asia and the Pacific</td>
<td>South Korea</td>
<td>Computer-assisted instruction/learning programs/products and services</td>
<td>Exam Preparation, Tutoring/Private Tuition</td>
<td>Secondary Education</td>
<td>RIID</td>
<td>D3 (D3 Jubilee)</td>
</tr>
<tr>
<td>Initiative Name</td>
<td>Region of Analysis</td>
<td>All Countries of Operation</td>
<td>Main Activity</td>
<td>Additional Activity(ies)</td>
<td>Education Sub-Sector</td>
<td>Implementer(s)</td>
<td>Target Funder(s)</td>
</tr>
<tr>
<td>---------------------------------</td>
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<td>--------------------------------------</td>
</tr>
<tr>
<td>Career Express</td>
<td>South Asia</td>
<td>India</td>
<td>Multimedia Services and Products Including AV and Non-Computer Media</td>
<td>English/Language Materials, Employment Skills Programs, Civic/Community Education, Employment Skills Programs, Life Skills and Personal Finance Training, Mentorship/Internship/Job Placement, Parental or Community Engagement in Support of Students, Programs Targeting Other Marginalized Groups, Programs To Improve Access and Equity in Education</td>
<td>Workforce Development Skills</td>
<td>Agrasar, Gurgaon Ki Awaaz Samudayik (Community Radio) 107.8 FM.</td>
<td>Macquarie Group Foundation</td>
</tr>
<tr>
<td>Connected Learning Initiative</td>
<td>South Asia</td>
<td>India</td>
<td>Computer-Assisted Instruction/Learning Programs/Products and Services</td>
<td>Computers and Tablets, Math Materials, Teacher Training, STEM Materials</td>
<td>Secondary Education</td>
<td>Massachusetts Institute of Technology (MIT), Tata Institute of Social Sciences</td>
<td>Tata Trusts</td>
</tr>
<tr>
<td>Digital Education Programme E-Shala</td>
<td>South Asia</td>
<td>India</td>
<td>Digital Classrooms</td>
<td>Computer-Assisted Instruction/Learning Program/Products and Services, English/Language</td>
<td>Primary Education, Secondary Education</td>
<td>CLT India, SELCO Foundation</td>
<td>Menda Foundation</td>
</tr>
<tr>
<td>Organization</td>
<td>Region</td>
<td>Country</td>
<td>Type of Products and Services</td>
<td>Materials, Math Materials, Programs to Improve Access and Equity in Education, STEM Materials, Teacher Training</td>
<td>Early Childhood Education</td>
<td>Sesame Workshop India, University of Maryland Foundation</td>
<td>Children's Investment Fund Foundation (CIFF)</td>
</tr>
<tr>
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<td>--------------------------------</td>
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</tr>
<tr>
<td>Galli Galli Sim Sim</td>
<td>South Asia</td>
<td>India</td>
<td>Multimedia services and products including AV and non-computer media</td>
<td>English/Language Materials, Computers and Tablets, Extra-Curricular Activities, Math Materials, Learning Materials for Students, Online Learning Portals; Online School/Centre, Programs to Improve Access and Equity in Education</td>
<td>Early Childhood Education</td>
<td>Sesame Workshop India, University of Maryland Foundation</td>
<td>Children's Investment Fund Foundation (CIFF)</td>
</tr>
<tr>
<td>Integrated approach to Technology in Education (ITE)</td>
<td>South Asia</td>
<td>India</td>
<td>Computer-Assisted Instruction/Learning Programs/Products and Services</td>
<td>Teacher Training</td>
<td>Primary Education, Secondary Education</td>
<td>Tata Trusts</td>
<td>Tata Trusts</td>
</tr>
<tr>
<td>Khan Academy Hindi</td>
<td>South Asia</td>
<td>India</td>
<td>Online Learning Portals; Online School/Centre</td>
<td>Computer-Assisted Instruction/Learning Programs/Products and Services, English/Language Materials, Exam Preparation, Entrepreneurship and Business Skills Programs, Learning Materials for Students, Tutoring/Private Tuition</td>
<td>Primary Education, Secondary Education</td>
<td>Central Square Foundation, Khan Academy</td>
<td>Central Square Foundation, Omidyar Network Services</td>
</tr>
<tr>
<td>mGuru</td>
<td>South Asia</td>
<td>India</td>
<td>Computer-assisted instruction/Learning Programs/Products and Services</td>
<td>Extra-Curricular Activities, English/Language Materials, Learning Materials for Students, Math Materials</td>
<td>Primary Education</td>
<td>mGuru</td>
<td>Mphasis F1 Foundation</td>
</tr>
</tbody>
</table>

*NOTE: The table shows a snapshot of organizations and their contributions to improving access and equity in education.*
<table>
<thead>
<tr>
<th>Name</th>
<th>Region</th>
<th>Country</th>
<th>Program/Service</th>
<th>Education Level</th>
<th>Organization</th>
<th>Foundation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile Computer Lab</td>
<td>South Asia</td>
<td>India</td>
<td>Computer-Assisted Instruction/Learning Program/Product and Services</td>
<td>Extra-Curricular Activities, Mobile School/Centers, Untraditional Schedules, Program to Improve Access and Equity in Education</td>
<td>Secondary Education</td>
<td>Aasraa Trust</td>
</tr>
<tr>
<td>Nalanda Project</td>
<td>South Asia</td>
<td>India</td>
<td>Computer-Assisted Instruction/Learning Programs, Products and Services</td>
<td>Digital Classroom, Math Materials</td>
<td>Primary Education</td>
<td>Motivation for Excellence Initiative</td>
</tr>
<tr>
<td>Nawalgarh E-Library</td>
<td>South Asia</td>
<td>India</td>
<td>School Wifi/Education Broadband Initiatives</td>
<td>Adult Literacy and Numeracy Programs, Computer-Assisted Instruction/Learning Programs/Products and Services, Digital Classrooms, Online Learning Portals, Non-Formal Education Youth, Programs Targeting Other Marginalized Groups</td>
<td>Missing Data</td>
<td>M R Morarka GDC Rural Research Foundation, Nawalgarh E-Library</td>
</tr>
<tr>
<td>Right to Read, English Bolo</td>
<td>South Asia</td>
<td>India</td>
<td>Online Learning Portals; Online School Centre</td>
<td>Computer-Assisted Instruction/Learning Program/Product and Services, English/Language Materials, Teacher Training</td>
<td>Adult basic and Continuing Education, Primary Education, Secondary Education</td>
<td>English Helper Technologies Pvt Ltd, Schoolnet India Limited</td>
</tr>
<tr>
<td>Vidya Helpline</td>
<td>South Asia</td>
<td>India</td>
<td>Multimedia Services and Products Including AV and Non-Computer Media</td>
<td>Chain of Schools/Centers, Online Learning Portals; Online School/Centre, Mentorship Programs, Programs Targeting Other Marginalized Groups</td>
<td>Secondary Education</td>
<td>Nirmaan Organization</td>
</tr>
<tr>
<td>Scholarship and Financial Aid, Transitional Support</td>
<td>Virtual Classroom Tuition Project</td>
<td>South Asia</td>
<td>India</td>
<td>Computer-Assisted Instruction/Learning Programs/Products and Services</td>
<td>English/Language Materials, Networks of Schools/Centers, Programs Targeting Other Marginalized Groups, Tutoring/Private Tuition</td>
<td>Secondary Education</td>
</tr>
<tr>
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</tr>
<tr>
<td>Zaya</td>
<td>South Asia</td>
<td>India</td>
<td>Computer-Assisted Instruction/Learning Programs/Products and Services</td>
<td>Digital Classrooms, Math Materials, Online Learning Portals; Online School/Centre, Private Schools, School Infrastructure and Equipment, STEM Materials, Student Assessment and Progress, STI Activities</td>
<td>Primary Education</td>
<td>Teach a Class Foundation, Zaya Learning Labs</td>
</tr>
</tbody>
</table>
4.1.1 ICT Initiative Activities

In this study, the ICT initiatives addressed a total of 7 out of the 8 ICT programming activity types, as either their main or additional area of activity. These included: 1) computer-assisted instruction/learning programs/products and services, 2) computers and tablets, 3) digital classrooms, 4) multimedia services and products including AV and non-computer media, 5) online learning portals; online school/centre, 6) school wi-fi/education broadband initiatives, and 7) STI activities. The findings reveal different results for both the main programming activity and additional programming activities.

The main programming activity for the eight initiatives under analysis in East Asia and the Pacific were concentrated in 3 activity types. The main programming activity for the 14 initiatives under analysis in South Asia were concentrated in 5 activity types. For the East Asia and the Pacific initiatives the 3 main programming activity types were: 1) computer-assisted instruction/learning programs/products and services, 2) computer and tablets, and 3) online learning portals; online school/centre. Amongst the South Asia initiatives, the 5 main programming activity types were: 1) computer-assisted instruction/learning programs/products and services, 2) digital classrooms, 3) multimedia services and products including AV and non-computer media, 4) online learning portals; online school centre, and 5) school wi-fi/education broadband initiatives.

The additional ICT program activities for the East Asia and the Pacific initiatives addressed 3 ICT program activities: 1) computer-assisted instruction/learning programs/products and services, 2) computers and tablets, and 3) STI activities. The additional program activities for the South Asia initiatives addressed 5 ICT program activities: 1) computer-assisted instruction/learning programs/products and services, 2) computers and tablets, 3) digital classrooms, 4) online learning portals; online school centre, and 5) STI activities. Figure 4 shows
the 7 types of ICT programming activities that are present as either a main or an additional programming activity for the initiatives in this study.

![Graph of ICT Main and Additional Programming Activities]

**Figure 4: East Asia and the Pacific and South Asia Initiatives: ICT Main and Additional Programming Activities**

Note: The names of the codes have been abridged due to the limited space in the graph. Refer to Tables 3 and 4 to see the full form of the ICT programming activity names.

4.1.1.1 East Asia and the Pacific and South Asia Initiatives: Main and Additional Programming Activities

*Computer-Assisted Instruction/Learning Programs and Services and Online Learning Portals; Online School/Centre*

The greatest number of initiatives addressed two programming activities: computer-assisted instruction/learning programs and services and online portals; online school/centre (Figure 4). Half of East Asia and the Pacific and South Asia initiatives in this analysis addressed computer-assisted instruction/learning programs and services, and 6 further initiatives (2 in East Asia and the Pacific, 4 in South Asia) had it as an additional activity. Online learning portals/online
school/centre were the second largest main programming activity for initiatives in both regions. East Asia and the Pacific had 3 initiatives and South Asia had 2 initiatives that had online learning portals; online school/centre as their main activity. In addition, 3 South Asia initiatives had it as an additional activity as well. The initiatives that had online learning portals/online school/centre as their main or additional programming activity were only defined by online learning portals than online school/centre.

4.1.2 Education Sub-Sectors

Figure 5 presents the main education sub-sectors targeted by the 22 initiatives under analysis in East Asia and the Pacific and South Asia. Initiatives were classified according to six education sub-sectors: early childhood education, primary education, secondary education, tertiary education, adult basic and continuing education, workforce development skills, and “missing data.” The 22 ICT initiatives under analysis could simultaneously target more than one education sub-sector as the main sector operation. A total of 7 initiatives (3 East Asia and the Pacific, 4 South Asia) simultaneously targeted more than one education sub-sector (Tables 3 and 4).

Cumulatively, the highest number of initiatives addressed secondary education (6 East Asia and the Pacific, 8 South Asia). This was followed by primary education (4 East Asia and the Pacific, 7 South Asia). The other sectors had two or fewer initiatives. In South Asia, the initiatives had more initiatives targeting secondary education (8), followed by primary education (7). None of the initiatives in South Asia targeted tertiary education. In East Asia and the Pacific, secondary education had the highest number of initiatives (6), followed by primary education (4). For East Asia and the Pacific, no initiatives targeted early childhood education or adult, basic, and continuing education sectors. In secondary education, computer-assisted learning programs/products and services (3 East Asia and the Pacific, 4 South Asia) and online learning
portals; online school/centre (2 East Asia and the Pacific, 2 South Asia) were activities addressed by the highest number of initiatives, and the same for primary education: computer-assisted instruction/learning program/product and services (1 East Asia and the Pacific, 4 South Asia) and online learning portals; online school/centre (2 East Asia and the Pacific, 2 South Asia).

Figure 5: Main Education Sub-Sectors Targeted by ICT Initiatives (n= 22)
Note: Total exceeds 22 since an individual initiative could simultaneously target more than one education sub-sector.

4.1.3 Countries of Operation
The initiatives were operational across 14 countries in total (Figure 6). The initiatives covered 12 countries in East Asia and the Pacific. Three initiatives were operational in Philippines and two initiatives were operational in each of Australia, and South Korea. Cambodia, China, Indonesia, Japan, Malaysia, Philippines, Thailand, and Vietnam were targeted by one each. By contrast, in SA, initiatives operated only in India. However, Taiwan, Vietnam, Thailand, Malaysia, Singapore, and Indonesia only appear because one initiative (Cha-Ching) operated simultaneously
in all these six countries. The United States is represented because Knowre (East Asia and the Pacific) was operational there and in South Korea.

![Figure 6: All Countries of Operation (n= 22)](image)

*Note:* Total exceeds 22 since some initiatives operated in more than one country.

### 4.2 Implementers and Funders Analysis

The following sub-sections focus on the implementers and funders of the 22 initiatives under analysis in this study. The analysis examines the organizational types of the implementers, their profit status, and the number of implementers per initiative. It also examines the funders and number of co-financers per initiative.

#### 4.2.1 Implementer Organizational Types

The implementers belonged to five types: charity/NGO, CSR initiative/unit, network or platform, private foundations and other (see Figure 7). Impact investors were not one of the implementer types. There was a total of 35 implementers for the 22 initiatives in total, 13 for the East Asia and Pacific initiatives and 22 for the South Asia initiatives.
From most to least in number, the organizational types were: other, charity/NGO, private foundations, CSR/initiative unit, and network or platform. The ‘other’ category for the implementers were mainly education organizations or the initiatives themselves. This was the case particularly, where initiatives were set up as an education technology company delivering an individual service or product or as an application. Implementers classified as ‘other’ were mainly corporations, think tanks and education-oriented institutes. For the purposes of this analysis, such cases were not disaggregated from the category of ‘other’. However, it may be a point of further consideration for the larger project given this preliminary finding.

4.2.2 Implementer Profit Status

Implementers were classified according to the following profit statuses: not-for-profit, for-profit, and hybrid (Figure 8). Identifying the profit status of certain implementers was difficult because data on this were not always available or discernable. They were classified as ‘missing data’. The majority of implementers overall were not-for-profit (22 of 35). Hybrid implementers
were only found in East Asia and the Pacific. East Asia and the Pacific had an equal number of not-for-profit and for-profit implementers. By contrast, the majority of South Asia implementers were not-for profit (18), and only 1 was identified as for-profit.

Figure 8: Implementer Profit Status (n= 35)

4.2.3 Number of Implementers Per Initiative

The analysis could trace between 1 and 3 implementers (Figure 9). The categories ‘initiatives with 1 implementer’ and ‘initiatives with 2 implementers’ both have 10 implementers each. For East Asia and the Pacific, most initiatives had 1 implementer (4) followed by initiatives with 2 implementers (3). For South Asia the majority of initiatives had 2 implementers (7), followed by initiatives with 1 implementer (6).
4.3 Funders Analysis

In this study, two types of funders are under analysis, i.e., the target funders and the co-funders of the ICT initiatives. The target funders were private foundations and private-sector impact investors, in line with the focus of the larger research project. The results and analysis of the target funders from this study will be presented first, followed by the results and analysis of the co-funders of the ICT initiatives.

4.3.1 Target Funders

The majority of the target funders were private foundations, which is unsurprising as the large majority of target funders in the regional database were private foundations. Table 5 identifies the private foundations and impact investors from the regional database that were the target funders of the initiatives under analysis. In total, there were 18 target funders. Figure 10 shows the numbers by region. There were 15 private foundations and 3 impact investors. Most
were unique funders, that is they only funded initiatives in one of the two regions. Of these, 4 private foundations funded ICT initiatives in East Asia and the Pacific and 10 in South Asia. There was only one funder (Macquarie Group Foundation) that funded both regions. Of the impact investors, all were unique funders, that is, 2 funded ICT initiatives in East Asia and the Pacific (AERA VC and D3 Jubilee) and one in South Asia only (Omidyar Network Services).

### Table 5: Identification of Private Foundations and Impact Investors (Target Funders)

<table>
<thead>
<tr>
<th>Target Funder Organizational Types</th>
<th>East Asia and the Pacific Target Funders</th>
<th>South Asia Target Funders</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Private Foundations</strong></td>
<td>Lopez Group Foundation Inc.</td>
<td>Central Square Foundation</td>
</tr>
<tr>
<td></td>
<td>Macquarie Group Foundation</td>
<td>Children's Investment Fund Foundation (CIFF)</td>
</tr>
<tr>
<td></td>
<td>Prudence Foundation</td>
<td>DBS Foundation</td>
</tr>
<tr>
<td></td>
<td>Rockefeller Foundation</td>
<td>Deshpande Foundation</td>
</tr>
<tr>
<td></td>
<td>STI Foundation</td>
<td>Hans Foundation</td>
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<tr>
<td></td>
<td></td>
<td>Macquarie Group Foundation</td>
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<td>Manipal Foundation</td>
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<td>Menda Foundation</td>
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<td>Mphasis F1 Foundation</td>
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<td></td>
<td>M R Morarka GDC Rural Research Foundation</td>
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<tr>
<td></td>
<td></td>
<td>Tata Trusts</td>
</tr>
<tr>
<td><strong>Impact Investors</strong></td>
<td>AERA VC</td>
<td>Omidyar Network Services</td>
</tr>
<tr>
<td></td>
<td>D3 (D3 Jubilee)</td>
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</tr>
</tbody>
</table>

**Figure 10: Target Funders**

*Note: East Asia and the Pacific = EAP and South Asia = SA*
4.3.2 Collective Funders

Cumulatively, a total of 120 funders could be traced for the 22 initiatives under analysis. There were two types of funders in this analysis: unique funders (only funded in either East Asia and the Pacific or South Asia), and East Asia and the Pacific and South Asia initiative funders (funders with initiatives in both regions). The analysis could trace a total of 35 unique East Asia and the Pacific co-funders, and 67 unique South Asia co-funders. Figures 11 and 12, list the number of funders per initiative, so therefore there is a total count of 44 funders for East Asia and the Pacific initiatives (Figure 11), and a total count of 81 funders for South Asia’s initiatives, which will amount to a total count of 125 funder counts.

4.3.2 Number of Funders Per Initiative

This analysis also examines the collective number of funders, which includes the co-funders as well as the initiatives target funders. Figures 11 and 12 present the number of collective funders of the specific initiatives under analysis in East Asia and the Pacific and South Asia, respectively. It is interesting to note the range of collective funders that were tracked, from 1 to 51 (Khan Academy Hindi). Despite this spread, the analysis could track only one funder for half of the initiatives in the study.
Figure 11: East Asia and the Pacific ICT Initiatives: Number of Collective Funders Per Initiative

Figure 12: South Asia ICT Initiatives: Number of Collective Funders Per Initiative
Overall, this chapter presented the results from this thesis study on the implementation and financing of ICT initiatives in East Asia and the Pacific and South Asia. In this chapter, the results were structured in order to answer the sub-questions pertinent to this thesis study. The first half of this chapter presented attributes of the ICT initiatives such as the main and additional programming activities, education sub-sector, countries of operation, and on the NSP actors who implemented and funded the ICT initiatives. The next chapter is the discussion of the overall study and its significance in terms of the research study as well as its contributions to the literature.
Chapter 5: Discussion

This chapter reviews the significance of the results. It presents how the results contribute to the overall literature on the implementation and financing of ICT initiatives by NSP actors, suggests alternative explanations of the results, and presents suggestions for further research.

5.1 Significance of the Results

The main research questions and the sub-question(s) in this thesis were directed to discover preliminary results for further investigation on the implementation and financing of ICT initiatives in education in East Asia and the Pacific and South Asia from a larger database developed as part of a research program on NSP actors and the right to education. The findings from the preliminary analysis present ICT initiatives programming activities, education sub-sectors, launch countries of initiatives, the organizational types of the implementers, the profit status of the implementers, the number of implementers per initiative, the identification of the number of private foundations and impact investors there are amongst the target funders, and the number of collective funders (target funders and co-funders) per initiative. The main research question in this thesis and the sub-question(s) are restated below.

Main Research Question

What types of ICT initiatives in education are implemented and funded by non-state private actors in East Asia and the Pacific and South Asia?
Sub Question(s)

1) Comparing ICT activity in East Asia and the Pacific and South Asia:
   a) Across the two regions generally, are there different geographic concentrations of ICT programming activities (i.e., main and additional programming activities of the initiatives)?
   b) In which education sub-sectors are ICT initiatives most prevalent?
   c) In which countries are the ICT initiatives operational in East Asia and the Pacific and South Asia?
   d) Which organizational types are implementing the ICT initiatives? How many implementers are there per ICT initiative? What is their profit status?
   e) How many private foundations and impact investors are financing the ICT initiatives? How many collective funders (target funders plus co-funders) are there per initiative?

5.2 Contributions and Connection of the Results to the Literature

Examining the connection between the various foci of this study such, i.e. ICT initiatives, implementation, financing, and NSP actors in the literature was a challenge because the majority of studies done on ICT in education are implemented by state actors (De Witte et al. 2015; Lai et al., 2015: Mahmoudi et al., 2012: Tang, 2010), rather than on the role that NSP actors have in facilitating ICT education. Hence, this analysis helps to take this forward.

5.3 ICT Initiatives Analysis

ICT Activities

In this analysis, the initiatives covered a total of 7 programming activities. These included computer-assisted instruction/learning programs/products and services, computers and
tablets/computing skills focus, digital classrooms, multimedia services and products including AV and non-computer media, online learning portals; online school/centre, and school wi-fi/education broadband initiatives, and STI activities. The majority of initiatives were focused on computer-assisted instruction/learning programs/products and services, followed by online learning portals; online school/centre.

As specified in Chapter 4, out of the 8 East Asia and the Pacific initiatives, 4 were centered on computer-assisted instruction/learning programs/products and services. Similarly, for South Asia’s initiatives, 7 out of the 14 initiatives main program activity focused on computer-assisted instruction/learning programs/products and services. This accounts for half of the East Asia and the Pacific and South Asia initiatives in this study. East Asia and the Pacific and South Asia both had initiatives with online learning portals; online school/centre (only online learning portals) as its main programming activity as there was a total of 3 East Asia and the Pacific and 2 South Asia initiatives with this programming activity, which means that these initiatives could be accessed through eLearning and mLearning technologies. However, computer assisted instruction/learning programs/products and services was the largest type of main programming activity for both East Asia and the Pacific and South Asia.

The literature is rich in examining the impact of ICT in education through dLearning outlets, dLearning is educational learning that is facilitated by the use of technologies (Kumar Basak et al., 2018), and eLearning and mLearning are two types of educational technological outlets that are encapsulated under dLearning. eLearning is the technological outlet that delivers educational instructions through the use of computers (Kumar Basak et al., 2018), whereas mLearning is education instruction delivered through handheld and palmtop devices such as mobile phones, tablets and PCs (Traxler, 2005). However, the literature is scant on empirical
studies that examine ICT initiatives, especially on the implementation and financing aspects of these initiatives in the Global South.

This study revealed that dLearning is common in delivering education in educational initiatives. Many studies in the literature had expressed some positive perspectives on ICT in education (Christian et al., 2017; Mahmoudi et al., 2012; McMannis & McManis, 2016; Milici et al., 2014; Ra et al., 2016; Sánchez et al., 2011; Tang, 2010), whereas negative perceptions are also prevalent (Price, 2015; Umar and Abu Hassan, 2018; Waters et al., 2014).

In exploring the literature of eLearning through computer-assisted learning, there were many scholars that support eLearning (Christian et al., 2017; Milici et al., 2014; McManis & McManis, 2016; Tang, 2010). However, there are many scholars that are critical of the understanding that computer-assisted learning leads to good quality education (De-Witte et al., 2015; Price, 2015; Van der Kleij et al., 2015). This controversy is similar for mLearning (Liu et al., 2014), however, there are critical perceptions of mLearning (Mobinizad, 2018). As online learning portals; online school/centre (only online learning portals) was the second largest activity type, those initiatives which could be accessed through eLearning and mLearning outlets should be considered with more doubt on the effective quality of education it will have. In the midst of the critical discussion of eLearning and mLearning in education, it is interesting to note that the majority of the ICT initiatives in this study were based on computer-assisted learning instructions.

One of the larger conclusions regarding the results in this study and the literature, is that the types of ICT initiatives that were funded and implemented through the use of eLearning and mLearning do not align with the critical perspectives in the literature. This is important because despite the critical evaluations of these types of ICTs in the literature, these initiatives are implemented and funded. This finding between the results and the literature leads to more
questions about the intentions of the implementers and funders of these initiatives. It is a concern of why eLearning or mLearning are chosen as an educational outlet to provide educational information when some of the literature reveals ICT does not lead to effective and quality education. In this study, the mode of ICT through computer-assisted learning presented to be a “mediator” for students to learn educational topics. Similarly, Price (2015) argues that technology is a “mediator” that guides in the process of teaching.

Secondly, one of the key questions is the accessibility of these initiatives for all learners. The digital gap in education is still a concern, and the accessibility to technological outlets is often determined on the basis of one’s socio economic status (Buzzetto-Hollywood, 2018). To access these initiatives, learners need to have access to eLearning and mLearning technologies, and the majority of countries examined in this study such as India in South Asia or Philippines in East Asia and the Pacific are demographics within the Global South that are determined by dichotomous realities on the basis of socio-economic status. As Georgeson and Maslin (2018) suggest, SDG 4 is equitable quality education for all. However, how can these initiatives be addressing this goal if they present barriers to accessibility? This is a concern for further examination given preliminary results of this analysis.

**Education Sub-Sector**

The results revealed that the majority of initiatives analyzed targeted the secondary education sub-sector, followed by the primary education sub-sector. The secondary education sub-sector was the largest targeted education sub-sector for both East Asia and the Pacific and South Asia (total of 14). The primary education sub-sector presented to be the second largest education-sector. In the literature of e-learning and m-learning, many studies examined a mix of various education sub-sectors from early childhood education sub-sector (McManis & McManis, 2016),
students in the primary education sector (Liu et al., 2014; Valk et al., 2010), secondary education sub-sector (Liu et al., 2014; Milici et al., 2014; Valk et al., 2010), and tertiary education (Mahmoudi et al., 2012; Tang, 2010).

One of the big questions from the results of this study is why are the ICT initiatives largely targeting primary and secondary education sub-sectors? This is an important question to consider because it leads to conceptualizing the larger picture of how and why the delivery of education is leading to more technological based outlets (eLearning or mLearning devices). As more technology becomes integrated into education (Edingo, 2017; Macfarlane, 2015), the bigger question is, are these initiatives trying to deliver more and easier access to education resources or is it a way to get students integrated with technology based learning? This requires further examination because there are limited studies of why ICT initiatives by the private sector target primary and secondary school students particularly. Furthermore, the knowledge economy around the world is becoming more centered on gaining skills especially in technological competencies (Daveri, 2004).

**Countries of Operation**

Initiatives targeted a range of countries in East Asia and the Pacific, whereas the South Asia initiatives only targeted India. In the literature, there a number of studies are focused on examining the use and the effective quality and integration of ICT in education especially in the Philippines (Amoloza, 2013; Espinosa & Caro, 2011; Lumagbus et al., 2019) and India (Chatterjee & Nath, 2015; Gandhi, 2014; Khan & Ghadially, 2010). However, the studies have not focused on ICT initiatives by NSP actors. This reveals there is a significant gap on empirical studies that examine ICT initiatives by NSP actors in Asia, and especially within East Asia and the Pacific.
Amongst the South Asia initiatives in this study, the most interesting finding from this study is the fact that India is the only targeted country in the South Asia region. This speaks to a larger picture of India as an emerging global economy whose recent development was focused on IT. Sharma and Sharma (2011) argue that India’s industries have strongly become defined by the technology sector, with an IT industry that is characterized by three factors: human capital, a growing industry, and the interconnectedness between knowledge-based sectors. With India’s society booming with consumer based technological products such as cellphones or laptops as examples, this might shed light on why India is the only country represented in South Asia, and the most overall. It could be relevant on how India is orienting itself to create a knowledge economy based on ICT.

5.3.2 NSP Actors: Implementers and Funders

The majority of implementers for the initiatives analyzed were classified as ‘other’ (8 East Asia and the Pacific, 8 in South Asia). The category of ‘other’ in the typology for the project included: consultancy firms; multi-national corporations and local corporate entities; think tanks; education-oriented institutes. In this study, the implementers classified as ‘other’ were mainly multi-national corporations, think tanks and education-oriented institutes, pointing to their importance. Examples of education-oriented institutes from this study that implemented an initiative are the Massachusetts Institute of Technology (MIT) or even Tata Institute of Social Sciences (TISS). D’Antoni (2009) argues that in 2000 UNESCO’s collaboration with academics from developing countries developed the term “open educational resources” (OER). Similar to ICT initiatives in this study, OER are online education resources that are open to the public either through courses, modules, videos, etc. (D’Antoni, 2009). Many notable universities such as MIT created the OpenCourseWare initiative (D’Antoni, 2009), and other universities in the Global
South have engaged in creating ICT initiatives centered on math learning materials (Liverpool et al., 2009).

This is important because education-oriented institutions such as MIT and TISS are taking a role in implementing these initiatives. However, the question is why are education oriented institutes doing this instead or more multinational corporations, think tanks or one of the main NSP actors of this thesis study such as private foundations? This question is vital to understanding the goals and motivations that education oriented institutes have in the implementation of ICT initiatives. Even though the implementers’ websites and annual reports do indicate the goals of their initiatives, it is equally important to examine what purpose the developments of these initiatives do for these implementers. Further research should look into expanding the discussion of education oriented institutes and their larger role as NSP actors in implementing education initiatives.

There is a gap in literature on empirical studies of NSP actors taking on roles as implementers for education initiatives. Their involvement was unique as some of these implementers were the initiatives themselves (i.e., mGuru in South Asia, Math Pathways in East Asia and the Pacific). This unique finding of NSP actor involvement in the implementation of education initiatives is not examined in the literature. By profit orientation, the implementers in East Asia and the Pacific were for-profit (3), hybrid (2), and 3 implementers could not be classified. By contrast, implementers in South Asia were not-for profit (6), for-profit (1), and 1 implementer could not be classified. Therefore, the results of this reveal that East Asia and the Pacific and South Asia implementers under ‘other’ had a mix of different profit statuses, however it is evident that there were more East Asia and the Pacific implementers that were for-profit compared with South Asia.
A number of authors discuss the growth of profit-oriented NSP actors in education (Aubry & Dorsi, 2016; Ball and Olmedo, 2011; Bhanji, 2008; Srivastava & Walford, 2016). Georgeson and Maslin (2018) indicate that NSP actors that are profit-oriented are a concern because it questions whether they are compatible with SDG 4 which is on equitable quality education for all. However, this also depends on whether the initiative itself is also profit-oriented, something that was not analyzed.

The majority of target funders were private foundations. East Asia and the Pacific and South Asia each had a larger count of private foundations funding their initiatives. Specifically, East Asia and the Pacific’s initiatives were funded by 5 private foundations, and South Asia’s initiatives were funded by 11 private foundations. However, as stated in Chapter 4, Macquarie Foundation is a private foundation that funded an East Asia and the Pacific and a South Asia initiative. Private foundations can be grant makers as well as independent organizations to implement and finance their own projects. In this study, a few of the target funders that were private foundations were both funders and implementers (Central Square Foundation, Manipal Foundation, Prudence Foundation, STI Foundation, Tata Trusts). A total of 2 East Asia and the Pacific and 3 South Asia private foundations (implementers), were also target funders in this study.

The number of impact investors in the target funders sample was considerably less than private foundations. There were 2 impact investors for East Asia and the Pacific and 1 impact investor for South Asia. However, each impact investors funded more than one ICT initiative under analysis. D3 Jubilee and Omidyar Network Services funded two initiatives that were operational in two regions. Specifically, D3 Jubilee funded Knowre, which was operational in South Korea and the United States. Though Omidyar Network Services funded Khan Academy Hindi, this impact investor also invests in the initiative Khan Academy and English Helper (Right to Read,
English Bolo is a sub-initiative of English Helper), which is available in the US as well. GIIN (2018) signifies that impact investors will invest because it is a part of their mission. This analysis shows that impact investors want to make an impact in different regions.

5.4 Contributions to the Literature

This study examined the main research question of: *What types of ICT initiatives in education are implemented and funded by non-state private actors in East Asia and the Pacific and South Asia?* One of the motivations in doing a thesis on this topic was the lack of data on the role that NSP actors play in the implementation and financing of ICT initiatives in education. Although ICT has developed into a debate by scholars globally, the literature is significantly limited on ICT initiatives.

This thesis examined the main and additional activities of the ICT initiatives under analysis, the education sub-sectors, countries of operation, organizational identification of the implementers, number of implementers per initiative, profit status of the implementers, number of target funders that were private foundations and impact investors, and the total amount of funders (target funders plus additional funders) per initiative. This study has examined important questions that are left out in the literature in terms of the attributes of initiatives, especially ICT in education. The intention of this thesis is to provide a starting point for analysis in the larger research program that can be taken forward. It is also to inspire more studies on NSP actors as key providers in implementing ICT and other education initiatives. Qualitative studies on insights into the motives of implementers and funders would be beneficial to the literature, especially when there are negative and concerning implications of ICT in education for students.
Chapter 6: Conclusions

This MA study aimed to identify the implementation and financing of ICT initiatives in East Asia and the Pacific and South Asia with a focus on private foundations and private-sector impact investors. It conducted a preliminary analysis using a subset of data from a regional database on NSP financers constructed in a larger research program. The main aim of the MA study was to provide an initial analysis that could be followed up in future research analyses in the larger research program. Thus, results reported on the database are not seen as final but as initial indications to be pursued further.

The main research question that this thesis addressed is: *What types of ICT initiatives in education are implemented and funded by non-state private actors in East Asia and the Pacific and South Asia?* Sub-questions examined the attributes of the ICT initiatives and the NSP actors responsible for implementing and financing the initiatives. Analysis was conducted on a sub-sample of 70 private foundations and impact investors from the regional database. To be included in the sub-sample, the private foundations and impact investors had to have an office in either East Asia and the Pacific and/or South Asia, and finance initiatives in either one of the two regions. To be included in the analysis the initiatives had to: 1) be coded as an ICT initiative for the main programming area; 2) be launched or operational in either region; 3) include as least one target funder from the sub-sample of 70 funders; and 4) be operational between January 2015 and December 2017. This resulted in a total of 22 initiatives, with 8 in East Asia and the Pacific and 14 in South Asia under analysis.

6.1 Main Findings

This study provided insights into the similarities and differences of the ICT initiatives implemented and funded in East Asia and the Pacific and South Asia. This study provided a lens
into the roles that certain NSP actors have taken in the implementation and financing of ICT initiatives in Asia. The literature has examined studies of ICT in education implemented by the state (De Witte et al., 2015; Lai et al., 2015; Mahmoudi et al., 2012; Tang, 2010), rather than by NSP actors. Computer-assisted instruction/learning programs and services was the most common type of ICT initiative programming activity in the sub-sample. The ICT initiatives mainly targeted secondary education. East Asia and the Pacific initiatives targeted a variety of countries in the region, including one that also operated in North America (United States). However, the South Asia initiatives targeted only India. The initiatives were implemented by ‘other’ type of implementers, and were mainly multi-national corporations, think tanks and educational-oriented institutes, which provided insight into the role that these lesser researched organizational types may have as implementers of ICT initiatives. Most of the target funders were private foundations. Only one funder could be traced for most of the initiatives.

Computer-assisted instruction/learning programs and services was the most common type of ICT programming activity in the sub-sample under analysis. This type of programming activity is one of the most discussed in the literature on ICT. However, studies of computer-assisted learning have not been examined through initiatives per se, instead the literature on ICT education has focussed on the integration of ICT in schools by the state. It would add to the literature on eLearning. Furthermore, the literature does not present the types of implementers that are implementing ICT initiatives by its organizational type and profit status. The engagement of NSP actors in education is a growing field. There are limited studies that discuss about both private foundations and impact investors as implementers and funders within a research study.

One contribution of the analysis is on the potential applications for the literature. As stated, the literature is severely limited in empirical studies that examine ICT initiatives in education,
especially implemented and funded by NSP actors in the Global South. Though there are limited empirical studies in this area (Anheier & Leat, 2013), private foundations have been shown to have an active role in not only in funding (Caswell et al., 2008; Marten & Witte, 2008; Srivastava and Read, 2019a), but also in the implementation of projects (Ball and Junemann, 2011; Marten & Witte, 2008). However, the literature is also skeptical of private foundations (Reckhow & Snyder, 2014; Srivastava and Oh, 2010).

Caswell et al., (2008) argue that foundations have been crucial as grant givers to ICT related projects. In addition, Ball and Junemann (2011) argue that philanthropic foundations have been engaging in “new philanthropy” which is a “hands on approach” which signifies the active role that philanthropists play in managing projects. Empirical studies of private foundations are limited in the literature, and according to Anheier and Leat (2013), the roles of private foundations in education are not broadly understood by the larger public. According to Srivastava and Oh (2010), the activities of American private foundations are more well-known in the literature, rather than on other types of private foundations from around the globe. Though this study revealed that private foundations are vital actors in the financing and implementation of ICT initiatives, Srivastava and Oh (2010) remind us to keep the larger debate of private foundations in mind. Reckhow and Snyder (2014) state that private foundations engage in privatizing public education.

Recommendations for further research are influenced by the comparison of the findings from this study and the literature on ICT and NSP actors in education amongst scholars. Firstly, as this study revealed, the literature would greatly benefit from more empirical studies on education initiatives implemented and funded by NSP actors especially in the area of ICT. Secondly, further studies could examine the motives behind the implementers and the funders of the ICT initiatives. Due to the critical perceptions of ICT in education within the literature (Price,
2015; Umar and Abu Hassan, 2018; Waters et al., 2014), it would be intriguing for researchers to investigate the motives behind the implementers and the rationale of funders supporting initiatives in this area. For example, are implementers and funders considering the critical studies done on ICT in education as well as the positive interpretations in the literature? Researchers could pursue these because the motives and reasons could be similar or different depending on who these NSP actors are and where the initiatives are operational. Furthermore, a critical lens is required especially in considering learners accessibility to these initiatives. Access to technologies can be greatly limited to those belong to lower-socio-economic backgrounds, and this is a concern if SDG 4 is focused to achieve equitable quality education for all by 2030.
References


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# Appendix A: Countries by Region

<table>
<thead>
<tr>
<th>Regions</th>
<th>Names of Countries</th>
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<tbody>
<tr>
<td>East Asia and the Pacific</td>
<td>American Samoa</td>
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<td>Australia</td>
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<td>Brunei Darussalam</td>
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Source: East Asia and the Pacific and South Asia Countries taken from World Bank, Development Indicators (2019a), and World Bank, Development Indicators (2019b).