"BOP BUSINESS STRATEGY FOR POVERTY REDUCTION THROUGH EDUCATION IN SOUTHEAST ASIA"

Research Paper

Masatoshi Hara, Swiss School of Business and Management, Geneve, Switzerland, masatoshi.hara@ssbm.ch

Abstract

Alleviating poverty has long been addressed as one of the most significant social issues in the developing world. Notably, further development, growth, and prosperity in standard of living need to be further encouraged, especially in Southeast Asia. The Base of Pyramid (BOP) business has become one of the most innovative ways to mitigate poverty by private sectors, while much less existing research on formulating a strategic framework of promoting education for poverty reduction has been conducted. This paper contributed to mitigating poverty in Southeast Asia by formulating a strategic framework to promote educational opportunities using the grounded theory model and finding a strategy of how ICT reflects the completion rate in secondary education and individual income through a mixed-method. These frameworks are featured with the combination of economic development policies with business development strategy along the income stage towards the realization of sustainability as a way to expand BOP business.

Keywords: BOP Business Strategy, Poverty Reduction, Southeast Asia, Secondary Education, ICT

1 Background

While the world economy has dramatically advanced since World War II, many economies have struggled for growth, prosperity, and development. Previous studies by other researchers have signified the Sustainable Development Goals (SDGs) realization in developing countries to be one of the world's most significant social problems (UN, 2018). Since the outbreak of the COVID-19 pandemic in early 2020 (WHO, 2022), the world economic outlook has further deteriorated (IMF, 2022). Remarkably, developing countries have faced a higher poverty rate with the lower income status as one of the most serious social issues (World Bank, 2022). Under the situation, promoting poverty reduction for the SDGs should further be promoted even under the pandemic.

The recent trend to promote the SDGs is that the development sectors have attempted to reduce poverty by employing their business products and services, especially with inclusive business, fair-trade, CSR. Notably, "the Base of Pyramid" (BOP) business has been paid attention to by international organizations and governments. The BOP business's primary aim is to improve impoverished people's lives by actively involving them in the businesses as consumers, producers, sellers, or distributors (London, 2007). Still, the BOP business has not become a panacea for overcoming poverty reduction in all the areas. Since the business model is a relatively new approach, it is necessary to see how much impact poverty reduction has as objectively as possible. Also, because developing countries have different socioeconomic and cultural backgrounds, clarifying the BOP business development's essential conditions should further be considered.

Based on the social problem and background, this study covers business economics and strategic planning, especially with the motivation of analyzing the impact of the BOP business on alleviating poverty in developing countries. Besides, it proposes a conceptual framework relevant to the BOP business conditions for strategic management. In this respect, this study will significantly be

contributing to business practice and knowledge advancement. The literature review starts with the introduction of the theory and practices relevant to poverty in the developing country, the practice of the traditional approach to poverty, the BOP approach to poverty, and the identification of the research gaps that were addressed in this study.

2 Preliminary Review of Literature and Potential Study Gaps

2.1 Review of literature

Literature review is composed of two items of "Education for Poverty Reduction in Southeast Asia," and "BOP Business Approach to Poverty Reduction" accordingly.

2.1.1 Education for Poverty Reduction in Southeast Asia

Poverty can be defined as "a situation where people find it inaccessible to a minimum fundamental in leading their lives, including education, job, food, medical insurance, water resource, residence, or energy." (UNDP, 2021). Since World War II, plenty of international organizations and other agencies have tackled with poverty reduction in poor economies as development assistance. Consequently, certain East Asian economies, especially Japan, Republic of Korea, and China, have achieved a new level of development since the Second World War (Perkins, 2013). Nevertheless, further development, growth, and improvements in standard of living need to be further promoted, especially in Southeast Asia. Then, poverty has still been one of the most crucial social issues in the region.

The *World Development Indicators* (WDI, 2022) is available database to analyze poverty related indicators. Statistically, the number of poor under 1.9US$ per day and poverty headcount ratio per six regions of East Asia & Pacific, Europe & Central Asia, Latin America & Caribbean, Middle East & North Africa, South Asia, Sub-Saharan Africa, and the World. Sub-Saharan Africa still has the highest proportion of the poverty headcount ratio with the figure of 38.9% (435.6 million) in 2018. Meanwhile, East Asia & Pacific, Europe & Central Asia, Latin America & Caribbean, and Middle East & North Africa have considerably lower rate of poverty headcount ratio with the range of approximately 1 to 4% in 2018. Based on the analysis of the poverty trend and individual income status by region and country, we can simply conclude that two groups are categorized; one is to succeed in poverty reduction until now, and the other is to fail in poverty reduction. Ultimately, the former is East Asia and the Pacific, and the latter is sub-Saharan Africa. Indeed, Otsuka (2020) expressed that the current development status in the world can boil down to the "Successful Asia vis-à-vis the failure Africa." These impoverished people under $1.90 are categorized as the so-called "Base of the Pyramid," with the figure of approximately over 4 billion in the world (Hammond et al., 2007), while Colliar (2008) called it "the Bottom of Billion" in his study. The extreme poverty issue persists even currently.

Poverty is multi-dimensionally applied to other perspectives than income status. For instance, the UNDP (2021) interestingly established their statistics of the Human Development Index (HDI) with the three elements of life expectancy, enrolment rate for secondary education, and GNI per capita. The essence of the idea comes from Sen's "Capability Approach" (Sen, 1999, p.5). With the concept, the UNDP emphasized the significance of measuring poverty from other perspectives than individual income, ranking the index scores per nation in the world (UNDP, 2022). With this context, the UNDP developed the statistics of HDI indicating that the closer to 1.00 the figurre is, the development status is higher. Table 1 represents the trend of the HDI per region from 1990 to 2021 per region. Interestingly, we can see that there was an improvement in the HDI, especially in East Asia and the Pacific with the figure of 0.517 in 1990 to 0.749 in 2021.

Nevertheless, in gaining insight into the HDI statistics more minutely, especially per country in East Asia and the Pacific, there was a huge gap in the figure of HDI among Southeast Asian economies. Specifically, as can be seen in Table 2, it can easily be observed that several economies, including Singapore, Malaysia, and Thailand were ranked in the higher level, while the other economies, especially Indonesia, the Philippines, Vietnam, Lao P.D.R., Cambodia, and Myanmer were

congregated under 110th to 150th in the index over the past 30 years. In this regard, it would be worthy to note that human development in those lower-ranked economies should further be promoted.

No.	Region/ Year	1990	2000	2010	2015	2021
1	Middle East	0.556	0.614	0.676	0.691	0.708
2	East Asia and the Pacific	0.517	0.595	0.688	0.724	0.749
3	Europe and Central Asia	0.662	0.675	0.739	0.775	0.796
4	Latin America and Curribean	0.632	0.69	0.736	0.759	0.754
5	South Asia	0.437	0.501	0.58	0.62	0.632
6	Sub-Saharan Africa	0.404	0.426	0.501	0.535	0.547

Table 1. Trend of Human Development Index per Region (1990 to 2021)
Note. Referencing from UNDP (2022), Hara summarized the data.

No.	Country	HDI Rank	1990	2000	2010	2015	2018	2021
1	Singapore	12	0.721	0.821	0.909	0.931	0.936	0.939
2	Japan	19	0.818	0.858	0.887	0.908	0.917	0.925
3	Republic of Korea	19	0.732	0.823	0.889	0.907	0.914	0.925
4	Malaysis	62	0.643	0.723	0.772	0.796	0.805	0.803
5	Thailand	66	0.577	0.652	0.724	0.749	0.772	0.800
6	China	79	0.499	0.588	0.699	0.739	0.755	0.768
7	Indonesia	114	0.523	0.603	0.665	0.695	0.712	0.705
8	Vietnam	115	0.483	0.586	0.661	0.688	0.700	0.703
9	The Philippines	116	0.593	0.632	0.671	0.701	0.711	0.699
10	Lao P.D.R.	140	0.405	0.471	0.552	0.598	0.609	0.607
11	Cambodia	146	0.368	0.424	0.539	0.570	0.585	0.593
12	Myanmer	149	0.342	0.414	0.515	0.557	0.579	0.585

Table 2. Trend of Human Development Index in East Asia and the Pacific (1990 to 2021)
Note. Referencing from UNDP(2022), Hara summarized the statistics.

For these developing countries to improve the index, investing education has been considered as one of the most significant ways for further growth. When it comes to the more statistic data relevant to educational achievement and GNI per capita, we can see the positive correlation with each other. Indeed, Schultz (1971) analyzed the impact of education on economic development. In relation to agricultural and manufacturing development, he observed that the enhancement of human capital through education and training enables workers to improve the numeracy and literacy required for their job opportunities, improving their income levels, and reducing poverty. A relationship between education and economic growth can therefore be conceptualized. Yamagata et al. (2010) created a theoretical framework relating income increases to years of schooling. This framework simplified the relationship between income and human capital investment, describing how uneducated laborers can raise their income levels, while those who are educated can raise the income after the duration of education. Also, Banergee and Duflo (2012), in their study of “Poor Economics,” used a randomized

controlled trial model, observing and analyzing the impact of education on poverty and individual income based on years of field research in developing countries (Banergee & Duflo, 2012). These authors concluded that there is no single means to eradicate poverty, while education is at least one of the appropriate ways to reduce poverty by expanding job opportunities (Banergee & Duflo, 2012). In a word, education is undoubtedly affecting individual and social income status.

Similarly, regarding a study relevant to education and economic development in Southeast Asia, Hara (2022) previously studied the educational factors predicting the Middle-Income Trap (MIT), named by Gill and Kharas in 2006 (2017), in these Southeast Asian economies, resulting in the statistically significant R^2 when controlling other factors, including governance, industrialization, labor market, and infrastructure. The MIT is defined as the status of the incapable economies to overcome the middle-income stage in the world, especially in ASEAN and Latin America. Hara (2022) suggested that investing education, notably secondary education and higher education, will be an economic driver that can mitigate poverty reduction and overcome the MIT in the long run.

East and Southeast Asian Countries	Net Enrollment rate in primary education (2015, %)	Net Enrollment rate in secondary education (2015, %)	Net Completion rate of secondary education (2015, %)	Gross Enrollment rate of tertiary education in (2015, %)
Indonesia (LM)	90.9	76.8	98.5	27.9
Philippines (LM)	95.7	65.9	86.5	35.3
Vietnam (LM)	98.0	77.8	90.0	28.3
China (HM)	100.0	100.0	100.0	45.4
Malaysia (HM)	99.5	73.4	87.0	42.4
Thailand (HM)	98.0	77.3	79.6	45.9
South Korea (H)	100.0	100.0	100.0	93.3

Table 3. Basic Educational Statistics in East and Southeast Asia
Note. Referencing from World Bank (2022), Hara summarized the statistics.

Finally, in quickly reviewing the educational status in Southeast Asia statistically, Table 3 above describes the trends of enrollment as well as completion rates for primary, secondary, and higher education in several Asian economies in 2015. The six economies presented, including both lower-middle income economies (LMIEs) and higher-middle income economies (HMIEs), have achieved at least 90% net enrollment in primary education, but improvement is needed in the proportion in secondary education as the figure averages approximately 60% to 77% with the exception of China. Notably, the Philippines has the lowest percentage among the middle-income economies in 2015, 65.9%. Finally, as for enrollment in higher education, these economies have a percentage with a range of 25% to 45%. Eventually, due to an insufficient allocation of financial and human resources, these opportunities need to be cultivated in both HMIEs and LMIEs (Tran, 2016).

From these points of view, it can be skeptical about what Otsuka (2020) mentioned, "Successful development in Asia," from statistical observation and literature review. Straihtforwardedly, we should not overlook the point where Southeast Asia still needs to further developed. It would, therefore, be significant to study the development strategy in Southeast Asia from the viewpoint of eradicating poverty through human development by education.

2.1.2 The BOP Business Approach to Poverty Reduction

The BOP business is inextricably linked to poverty alleviation. It was originated by two scholars, Hart and Prehalad (2002), in their study report in 2000. The BOP business can be defined as a behavior-oriented model or an approach that helps business organizations sufficiently promote their activities in

undeveloped and unserved markets (Mathur et al., 2016). The BOP business cases, especially in the U.S., the U.K., and Japan, have steadily risen for balancing poverty reduction and maximization of the business profits.

The BOP business is composed of several styles: Firstly, the development sectors, especially the United Nations (2018), have advocated the Sustainable Development Goals (SDGs) through cooperation, collaboration, and coordination (Zomorrodian, 2011). The organization has encouraged "inclusive business" since 2006 by launching "Growing Inclusive Markets" for alleviating poverty and improving the lives of others (UNDP, 2022). Secondly, fair-trade is a business model that can support people's lives in developing countries by purchasing the products in the consumer market in developed economies (Ruben, 2008). For alleviating the equality between the rich and poor economies, the fair-trade model has been developed and expanding the market scales since 2004 (Smith, 2009). Finally, the Corporate Social Responsibility (CSR) activity can encourage business organizations to create new values and new markets for enforcing corporate competitiveness, sustainable development, and activation of the entire economy simultaneously (Du et al., 2010). With the styles, the BOP business has been promoted to maximize the group benefits and mitigate poverty.

Theoretically, Simanis and Hart (2008) formulated the framework of the BOP business development stage. It has historically three steps of first-generation BOP (BOP 1.0), second-generation BOP (BOP 2.0), and third-generation BOP (BOP3.0). BOP 1.0 is for “selling to the poor,” while BOP 2.0 is for “creating mutual value (CMV),” respectively (Simanis and Hart, 2008). BOP 1.0 aimed at having the poor involved with the business for earning benefits until 2007. BOP 2.0, then, aimed at creating the value chain from scratch and grasping the market needs accurately, which was the mainstream until 2012. Then, BOP 3.0 was conceptualized by introducing open innovation approaches and more participatory governance structures under the concept of “wisdom of the crowd” since 2013 (Cañeque and Hart 2015). In this way, the poverty reduction approach via BOP should further be signified.

As the existing survey conducted by the World Bank (2007), some industries, including food, energy, housing, health, water, ICT, and transportation, are the representative sectors to be promoted. Remarkably, the food industry has the largest proportion in the spendings out of the other indusries (World Bank, 2007). Because of the world hunger trigered by food insecurity, especially in the low and lower-middle income countries (LLMICs), especially in some parts of Southeast Asia, South Asia, Middle East, and Sub-Saharan Africa, the food for the poor with extreme hunger should urgently be supplied, especially for mul-nutritious children and women (UNDP, 2022). However, the problem is how the BOP business can approach to poverty reduction, especially under the pandemic since 2020.

When it comes to an online education, ICT has been helpful in promoting educational opportunities in many parts of the world by introducing digitalization of text books, implementation of online classes/lectures (“E-Learning”), facilitation of virtual teaching platforms, material-making by tablets, and providing students a laptop for learning, etc. (UNESCO, 2013). ICT stands for “Information and Communication Technology,” which has revolutionized our way of life through the development of the state-of-the-art devices, e.g.) Tablet, Smart Phone, IC cards, ATM, etc. In the developing world, the ICT has been arranged for promting education and human development, especially since the beginning of the pandemic (UNESCO, 2022). Remarkably, introducing online leanring has been popular for avoiding the face-to-face communication in the small classroom. In the context of the BOP business, the ICT education has been one of the most significant items, especially for hard-to-reach children, children from poor households, and continuing education for young adults who were not able to be educated at their school ages before. Indeed, some scolars have studied the effects of ICT on education. Ali shad et al. observed the ICT education to be cost-effective and time-saving based on their previus study with 429 samples in Pakistan, making an interstingly framework of the ICT education comprising with four aspects of “Availability,” “Usage,” “Knowledge,” and “Efficiency,” concluding that “Availability” and “Usage of ICT” improves the knowledge and learning skills of students by helping the students improve the educational efficiency and oblige to make educational sector policies, leading to poverty reduction through income increase (Ali shad, et al., 2011).

In this way, it would be more beneficial for me to focus on ICT for poverty reduction through education, notably by paying closer attention to how education can be approach to poor households, the specific process of promoting education for poverty reduction, and how the results can be seen more specifically by using the case of Southeast Asia.

2.2 Identification of Study Gaps

Two potential study gaps were found to be framed as research problems below.
Firstly, despite some advantages of the business style, much less research on the strategic stydy relevant to education for poverty reduction in Southeast Asia was identified. Indeed, there has been significant impact of education on poverty mitigation studied and led representatively by the governments and the international organizations (Sen, 1999). The poverty issue has been triggered, primarily by unskilled labor, market, less job-opportunity, as well as the insufficient infrastructure (ADB, 2017). Nevertheless, a strategic framework to accelerate education for poverty reduction needs to be further addressed academically and practically. Thus, it is necessary to discuss the strategic promotion of education for poverty reduction.
Secondly, despite the recognition of significance of expanding the educational opportunities, much less research on the strategy that the ICT help explain the improvement in poverty reduction through education and individual income from poor households in Southeast Asia was found from existing studies. The variety of the ICT education services have been available, especially since the late 2000s in some parts of the world, while investigating to what extent online education can help explain the improvements in children's performance should further be signified. From this point of view, the roles of ICT for poverty reduction through education should further be studied and addressed.

3 Objectives and Research Questions

3.1 Objectives

This study's primary purpose is to contribute to mitigating poverty in many parts of the world by formulating a strategic framework to promote educational opportunities in Southeast Asian economies via qualitative study and finding a strategy that ICT reflect the poverty reduction through education and individual income from poor households through the case studies. Based on the study purposes, here are the research questions (RQs).

3.2 Research Questions (RQs)

RQ1: How can the framework of promoting education for poverty reduction in Southeast Asia as a way of BOP business development strategy be formulated and recommended?

RQ2: How can ICT help establish a strategy for the improvement in completion rate for secondary education and individual income from poor households in Southeast Asia?

4 Frameworks

4.1 Theoretical Framework: Education for Poverty Reduction

Theoretical framework refers to a general or broader set of ideas by scholars for demonstrating the relationship that exists between the primary variables, primarily through quantitative research (Dickson et al., 2018). Specifically, with the research purposes of contributing to poverty reduction through education in developing countries, two primary perspectives of poverty and education were captured. Interestingly, Hara (2022) made his theoretical framework to visualize the relationship between education and poverty reduction in developing countries with reference to several frameworks represented by the return to educational investment by income level by Psacharopoulos and Harry (2004), human capital development by Schultz (1971), and the economic development stage

model Tran (2016). Specifically, the low-income stage with the highest poverty ratio; the countries in the stage should promote primary education for poverty reduction. Then, education level should further be higher for overcoming the lower-middle income trap (LMIT) as maturity and transition to saturation. Also, with the need for the promotion of science and technology and the innovation (Tran, 2016), the higher education should further be promoted for escaping the higher-middle income trap (HMIT). This framework can help to make the relationship between poverty reduction through economic development and education achievement visually more evident, showing the connection between the key variables of the poverty ratio and education level. The framework can be rationalized with the existing models and be referenced in understanding which education level should be improved in Southeast Asia in consideration of how to formulate a staretgic framework of promoting education for poverty reduction per income level. Otherwise, education policy may not work for sustainable development in the region.

4.2 Conceptual framework: BOP Business Development Strategy

Meanwhile, conceptual framework refers to an analytical tool that is used to have a comprehensive understanding of a phenomenon in various fields of studies by visually explaining key concepts or variables and the relationships between them that need to be studied (Swaen, 2021). Interestingly, Simanis and Hart (2008) formulated the framework of the BOP business development stage. It has historically three steps of first-generation BOP (BOP 1.0), second-generation BOP (BOP 2.0), and third-generation BOP (BOP3.0). BOP 1.0 is for "selling to the poor," and BOP 2.0 is for "creating mutual value (CMV)," respectively (Simanis and Hart, 2008). Then, BOP 3.0 is for open innovation approaches (Cañeque and Hart, 2015).

Hara (2021) developed his new conceptual framework relevant to the BOP business development strategies for poverty reduction per income group; low-income, lower-middle income, and higher-middle income. It can help visually to show the roadmap of poverty reduction per income stage by indicating which development issues should be addressed and which BOP stage should be focused on as appropriately as possible. One significant point in the framework is that five sequences were arranged for promoting the BOP business. In common, all countries need to arrange governmental ownership, infrastructure, and education. In arranging the infrastructure, the next sequence required for development is to promote technological transfer and development from overseas through further investment in technology and trainings (Ohno, 2010). Then, the FDI can further be enriched at the fourth stage. Finally, the BOP business can further be promoted via the FDI and the other development assistance methods. As for the BOP development strategy, I used three types of BOP 1.0, BOP 2.0, and BOP 3.0: The low-income economies should focus on the BOP 1.0 for reducing poverty as an immediate approach. Also, the LMIEs should enhance not only the BOP 1.0 but also BOP 2.0, because they should accelerate the industrial promotion primarily through creation of the value chain. Finally, the HMIEs should promote BOP 3.0 for expediting technological innovation towards high-income level.

5 Methodologies

This study's primary purpose is to contributing to mitigating poverty in Southeast Asia by qualitatively formulating a strategic framework for promoting educational opportunities, primarily through case studies in Southeast Asia and finding the most efficient method to promote education for children and young people in poor households via BOP business in Southeast Asia.

5.1 For RQ1

5.1.1 Data-collection and treatment

I will find the necessary data relevant to the development strategies to promote education for poverty reduction and development plans for education. I will employ the archive data, primarily from the international organizations, the government agencies in nine economies (Cambodia, Indonesia, Lao

P.D.R., Malaysia, Myanmer, the Philippines, Thailand, Timor Leste, and Vietnam) in Southeast Asia, as the primary data due to the most significant entities in this RQ. Specifically, the archive data relevant to the development strategies for poverty reduction and the educational strategies or frameworks will be obtained.

5.1.2 Methodology

I made a procedure of conducting the document analysis for the grounded theory approach as follows. Firstly, I conducted the data-collection from the available web-sources, notably including international organizations, scholars' existing studies, and local governments. The data were relevant to the two platforms; "1. Development strategies for poverty reduction through education in Southeast Asian economies" and "2. Educational strategy." Consequently, I found samples sourced per organization, author, and nation relevant to development strategies through education for poverty reduction. These are authentic which were officially issued from the international organizations, governments, and research institutes.

Next, I analyzed the data and excerpt the texts which are directly related to the platforms above. From the excerpted texts, the way I will analyze them is to describe the executive contents one by one. Then, the grounded theory is represented as the inductive approach to demonstrating the uses of the three-step coding process; open, axial, and selective coding. More significantly, the open, axial, and selective coding processes help us develop a cyclical and evolving data loop. In that way, the scholars can interact, are constantly comparing data, and applying data reduction and consolidation techniques (Williams and Moser, 2019).

Firstly, the open coding refers to the method to make a procedure for developing categories of information by labelling from the summarized description as the first stage (Charmaz, 2006). When labelling the description, I made categories with around 10-word description or a phrase as the most significant items for poverty reduction in the selected countries. I will make some categories in broad initial thematic domains.

Then, moving on to the axial coding as the second stage of analysis, I interconnected the categories that I made in conducting the open coding (Charmaz, 2006). From the categories, I will integrate them into some categories. In the first platform of "1. Development strategies for poverty reduction through education in Southeast Asia," the international organizations of the ADB, the UNDP, the UNESCO, and the World Bank, and the government agencies of eight Southeast Asian economies (Cambodia, Indonesia, Lao P.D.R., Malaysia, Myanmer, the Philippines, Thailand, and Vietnam)," I have 12 samples which are composed of government agencies and several academic researchers of Otsuka (2020). I classified the samples into two categories; the former is from the international organizations and government agencies, and the latter is from the scholars, because I found some common essences of the development strategies for poverty reduction in the developing world from these agencies. Then, as for the second platform of "2. Educational development strategy and the strategies per education stage," these categorized samples were integrated into six components per country; Cambodia, Indonesia, Lao P.D.R., Malaysia, Myanmer, the Philippines, Thailand, and Vietnam. Indeed, when classifying these chosen nine economies into two income levels (LMIEs and HMIEs), I found the income stages in each economy are almost same, despite merely several different cases. More importantly, the poverty reduction strategies can be similar to each other per region. Therefore, these samples can squeeze down to some categories with smaller categories.

Finally, the selective coding was conducted with the procedure for building a story that connects the categories producing a discursive set of theoretical propositions as the third stage of the analysis (Charmaz, 2006). These categories at the second stage of the axial coding will be reduced down to the categories simply along with the three platforms. I will find the common thematic items per each platform. Finally, these categories will be integrated into one theory developed for answering RQ1.

5.2 For RQ2

5.2.1 Data-collection and treatment

Overall, for arranging the dataset to approach RQ2 quantitatively, I will use the secondary data in several variables. For covering the missing data, instead of utilizing the items of “Completion Rate in Secondary Education” and the “Poverty Ratio,” I used five items of “Internet Users (%),” “Active mobile-broadband subscriptions per 100 inhabitants,” “Fixed-telephone subscriptions 100 inhabitants,” “GNI per capita,” and “HDI” this time. In reference to the previous study by Aftab and Ismail (2015), I constructed the ICT variable by aggregating the three measures of “Internet Users (%),” “Active mobile-broadband subscriptions per 100 inhabitants,” “Fixed-telephone subscriptions 100 inhabitants.” The dataset listed the World Development Indicators of WDI, the International Telecommunication Union (ITU, 2022) and the Human Development Index of HDI (N = 96). One weakness to be reported in this paper is that I was not able to find enough data of “Completion Rate in Secondary Educatiom” and “Poverty Headcount Ratio,” because the plenty of missing data in these items were retrieved, and the local data issued by the governments in most of these eight economies. Instead, I chose the HDI and the GNI per capita, because no missing data was identified and the HDI itself includs the completion rate in secondary education.

Meanwhile, for qualitative analysis, I will find the necessary data relevant to the strategy of an ICT for education helping poor kids improve completion and income increase for poverty reduction. I will employ the archive data, primarily from the international organizations, the government agencies in eight economies (Cambodia, Indonesia, Lao P.D.R., Malaysia, Myanmer, the Philippines, Thailand, Timor Leste, and Vietnam) in Southeast Asia, as the primary data, due to the most significant entities in this RQ. Specifically, the archive data relevant to the ICT strategies for poor kids will be obtained.

5.2.2 Methodology

For RQ2, a mixed-method was employed as well. This method combines elements of quantitative research and qualitative research to answer my research question with the expanded evidence, helping me gain a more complete picture than a standalone quantitative or qualitative study, as it integrates benefits of both methods (George, 2021). The mixed-method has superiority in generalizability, contextualization, and credibility to the standalone quantitative and qualitative analysis. Remarkably, when examining the performance of online education both for quality and quantiaty of education, the standalone method cannot suffice. Also, when it comes to the research design, the effectiveness of educational performance can easly vary depending on the uncertain elements, including the individual’s abilities, their charactersitics, and the environments where they grow up. Therefore, I would think that qualitative data can explain and contextualize the quantitative findings. In this way, it would be approrpaite for me to choose an explanatory sequential design; quantitative data collection and analysis occurs first, followed by qualitative data collection and analysis.

The following procedure will be made to answer the question.

Firstly, I simply conducted quantitative analysis to see the effect of ICT on secondary education’s completion rate, and income status by employiing the multiple-linear regression analysis this time. One reason for this is that I primarily observe the effect of the online education on the students’ completion rate and learing performance in the designated eight economies (Cambodia, Indonesia, Lao P.D.R., Malaysia, Myanmer, the Philippines, Thailand, Timor Leste, and Vietnam) in Southeast Asia, especially by gaining insight into the figures of R^2 variance as coefficients of determination. The linear regression analysis allows me to use the DVs' general values and the interval ratios of the IV to be measured. In this regard, using the linear regression model allowed me to answer the research questions with the values of R^2 increase. The original formula of the linear regression is shown below:

$$Y = \beta 0 + \beta 1X1 + \varepsilon \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

For a brief explanation of each code, "Y" means the predicted value of the dependent variable, "β0" stands for the y-intercept (value of y when all other parameters are arranged to 0), "$\beta 1X1$" represents the regression coefficient ($\beta 1$) of the first independent variable ($X1$). It is worth describing how increasing the figure of the independent variable has on the predicted y value (Bevans, 2020). Then, "βnXn" demonstrates the regression coefficient of the last independent variable. Finally, "ε" represents model error. For example, how much variation there is in our estimate of "Y" needs to be considered. In applying the official formula (1) above to this study, I made the formula for the RQ2 as (2) below:

$$Y_{comp./income} = \beta 0 + \beta 1X1_{ICT.edu} + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

For simplicity, I made each code for RQ2 specific, e.g.) the code "$_{comp.}$" represents completion rate and "$_{income}$" represents GNI per capita for RQ2 as DV. Also, the code "$_{ICT}$," stands for the ICT as the IV. The basis of the multiple linear regression model using interval-ratio level data allows relevant interpretation of these data. Therefore, I employed the simple linear regression model this time.

Based on the statistic results, I conducted the qualitative analysis into practice. Specifically, I used document/archival analysis by referencing the papers, journals, articles relevant to a staretgy that online education can help students in poor households improve their completion and learning performance in the context of alleviating poverty in Southeast Asia. When it comes to the formulation of strategy, I analyzed the data and excerpt the texts which are directly related to the platforms above. The procedure of doing a qualitative analysis is the same with RQ1; open, axial, and selective coding were employed.

6 Study Results

6.1 For RQ1

With the open, axial, and selective-coding process with 15 samples, the final step of developing a framework relevant to poverty reduction through education to answer RQ1 is shown as follows.

1. "Low-income and Lower-middle Income" countries (LLMICs) should focus on the educational "INPUT" for generalization of basic education towards the realization of "OUTPUT" for poverty reduction, especially by gaining employability and learning job-making skills.
2. "Higher-middle Income" economies should focus on higher education as the primary "INPUT" for realizing knowledge economy through research and development as "OUTPUT"
3. Improving the skill of "Job-making" online can be an important key to avoid any threads, including poverty, educated unemployment, brain drain towards individual entrepreneurship.

As can be seen in Table 4, the two main platforms of "INPUT" and "OUTPUT" were arranged. Further, I put "Possible Converters from "INPUT" into "OUTPUTS" between these two platforms. These are the representative factors predicting "OUTPUT" according to Otsuka and Kurosaki (2003) and UNESCO(2012). The former is represented as "Educational Training," while the latter as "Poverty Reduction." As explained earlier, the most critical point in illustrating the framework relevant to education for poverty reduction would be to classify the entire economies in the world into income levels of Low-income, Lower-middle Income, and Higher-middle Income, and High-income. Since I dealt with the developing countries, I removed the High-income stage when illustrating the framework intensionally. Under the "INPUT," I put two sequences of "QUANTITY" and "QUALITY," respectively. These mean that the quantity of education, especially access and completion, should be prioritized, and the quality of education focusing on students' learning achievement, follows it sequentially. Every time the educational development is discussed, priorotizing "Quantity of Education" of "Quality of Education" has become one of the most controversial issues. Still, in consideration of the current situation of lower enrollent and completion rate in secondary education in Southeast Asia, it would be appropriate for me to choose the

improvement in quantity of education. Indeed, Esposito et al. (2011) emphasized the importance of improving the educational access in surveying in low and lower-income economies. Thus, I arranged these two items sequentially. Hanushek (2021) concluded that only skills matter for sustainable economic development in the developing world, while several more specific essences of "Socialization (Network, Communication)," and "Leadership/ Entrepreneurship" can be included in the item of skills. Meanwhile, "Motivation (Glit)" can also be added as the potential significant factor predicting poverty reduction. UNESCO (2022) implied that gaining only skills might not work for employability, while other factors, especially psychological aspect can further be considered. Interestingly, "grit" was emphasized when brushing up ability, knowledge, and skills by Duckworth (2016). Therefore, I put these two items in the component.

In gaining insight into the "Low-income income" and "Lower-middle income" when reviewing some documents relevant to poverty reduction through education, one of the most indispensable elements is to improve the access to basic education from the perspective of lower enrollement rate in secondary education, especially for gaining basic ability of reading, writing, and numeracy (UNESCO, 2012). Then, moving on to the quality of education, the elements of "1. Students' Learing Achievement and Motivation" and "2. Arrangement of Learning Environments" should primarily be addressed, in reference to the UNESCO's report that youth skills depend on their motivation and learning environment in 2012. Meanwhile, as for "Higher-middle income," they should focus on the expansion of higher education opportunity ("INPUT) for realizing "2. Research and Development," as well as "1. Students' Learing Achievement and Motivation" when reviewing government agencies' education policies and Tran's suggestion that the enhancement of the total-factor productivity (TFP) and human resource development could help national economies to escape the HMIT (Tran, 2016). Also, higher education plays the roles of education and R&D for knowledge economy (Oketch, 2016).

For the "OUTPUTS," I added two essential elements of "Employability" and "Job-making," in referencing to the Kyosaki's Job-type Matrix (2000) indicating which job-type can be poor dads and rich dads. On behalf of the diffusion of state-of-the-art gadgets, including smart-phones, Tablets, laptops, etc., people, even in the LLMICs, can be benefitted from the efficient business, notably through the social network (SNS), including Facebook, Twitter, Tiktok, Youtube, etc. These SNS platforms can help expand the business opportunires and increase side business income even in the developing world. Nevertheless, without the basic skills of writing, reading, and numeracy, it would be next to impossible to earn money for avoiding poverty. Before the 2010s, skills gained through education was only confined to the employability to work in business organizations, while "job-making" can be possible for those who have not been highly educated; Leaning and practicing business can be the key to success regardless of education degree levels, especially for avoiding "Educated unemployment" and "Brain drain" as well as "Small Market Economy" in LLMICs as potential threats. In a way, cultivating entrepreneurship individually can be a key in overcoming poverty. Such an opportunity should be needed through education.

6.2 For RQ2

Table 5 and 6 show the results of the most appropriate models executed. In paying close attention to the items of "R Square (R^2)" and "Adjusted R Square (Adjusted R^2)," accordingly. The Model in Table 5 had the figure .805 in *R*, while R^2 .648 with adjusted R^2 .644 with Significance in F. 4.6444E-23 (4.6444*0.1^23) eventually. Similarly, the Model in Table 6 had the figure .808 in *R*, while R^2 .653 with adjusted R^2 .649 with Significance in F. 2.43E-23 (2.43*0.1^23). Examining the Model in Table 5 as the final model, the "Adjusted R^2" was 0.644; approximately 64.4% of the ICT account for the primary predictor variables of completion rate in secondary education inside the HDI in the selected 8 Southeast Asian countries. In a word, the HDI is strongly influenced by the accumulated effects of the ICT. A remaining 35.6% of the predictive influencers remain unmeasured or otherwise unidentified. Likewise, Table 6 also had the similar result; the "Adjusted R^2" was 0.649; approximately 64.9% of the ICT account for the primary predictor variables of GNI per capita in the selected 8 Southeast Asian countries. In a word, the GNI per capita can strongly be influenced by the accumulated effects of the ICT. A remaining 35.1% of the predictive influencers remain unmeasured or otherwise unidentified.

No.	Income Level**	**INPUT** (Educational Training)		Possible Converters from INPUT into OUTPUTS	**OUTPUT** (Poverty Reduction)	Expected Threats that can hinder Output
		Primary focus on **QUANTITY** of Education (Access and Completion)	Primary focus on **QUALITY** of Education (Learning Achievement)		Primary focus on Human Capital Development	
1	Low-income (Less than US$1,045)	Generalization of Basic (Primary and Secondary) Education	1. Students' Learing Achievement and Motivation 2. Arrangement of Learning Environments	1. Knowledge and Skills (Socialization, Leadership, and Entrepreneurship) 2. Socialization (Network, Communication) 3. Leadership/ Entrepreneurship 4. Motivation (Glit)	1. Employability 2. Job-making	1. Small Market Economy 2. Brain Drains
2	Lower-middle Income (US$1,046 to US$4,095)	Generalization of Basic (Secondary) Education	1. Students' Learing Achievement and Motivation 2. Arrangement of Learning Environments		1. Employability 2. Job-making	1. Small Market Economy 2. Brain Drains
3	Higher-middle Income (US$4,096 to US$12,695)	Promotion of Higher Education	1. Students' Learing Achievement and Motivation 2. Research and Development for knowledge economy		1. Employability 2. Job-making	1. Educated Unemployment 2. Brain Drains

Table 4. A Conceptual Framework relevant to a Strategy of Promoting Education for Poverty Reduction in the Developing World.
Note. Based on Hanushek (2021), Hara (2021), Otsuka and Kurosaki (2003), UNESCO(2012), , I added the education level per income stage.
** Income Level: The World Bank (2022) estimated the four income stages; Low-income (less than US$1,045), Low-er-middle Income (US$1,046 to 4,095), High-er-middle Income (US$4,096 to 12,695), and High Income (over US$12,696).

Further, in paying attention to the item of "Significance in. F," the figures are 4.6444E-23 (4.6444*0.1^23) in Table 5 and 2.43E-23 (2.43*0.1^23) in Table 6, which are extremely 0.000. illustrated significant ($p < .05$). In a word, I saw the significance in these Models without the missing data. To further investigate these significant outputs, I evaluated the regression model ANOVA outputs for RQ2. Both ANOVA Models in Table 5 and 6 were significant ($p < .000$) illustrating a significant fit of data (see Field, 2018). Based on these perspectives for testing the quantitative analysis in the first sequence for RQ2, it was possible to be in favor of the ICT with statistically significant contribution to the completion rate in secondary education via HDI and income increase via GNI per capita, respetively.

Regression Statistics 1 (ICT to HDI)	
Multiple R	0.805267416
R Square	0.648455612
Adjusted R Square	0.644715778
Standard Error	0.049852775
Observation	96

Table 5. Linear Regression Model Output

Note. Adapted from Excel

Regression Statistics 2 (ICT to GNI per capita)	
Multiple R	0.808240292
R Square	0.65325237
Adjusted R Square	0.649563565
Standard Error	1752.685715
Observation	96

Table 6. Linear Regression Model Output

Note. Adapted from Excel

Based on the quantitative analysis, one more test of qualitative analysis was introduced. With the three variables of the ICT, Completion Rate in Secondary Education, and GNI per capita, I scruitinized the education policy via ICT per each country in Southeast Asia shown in Table 7 with several significant features to be identified below.

1. In low-income, especially in Cambodia, Lao P.D.R., and Myanmer, the mobile infrastructure to make the online education possible should further be arranged, while online jobs can be available as long as people finish their secondary education with higher salary.
2. In lower-middle income economies, especially in Indonesia, the Philippines, and Vietnam, online education should be available, while lower internet connection and hidden cost, such as textbooks and others, can cause the poor households not to allow their kids to go to school. Online jobs should further be available via SNS especially in English-spoken countries, especially in the Philippines.
3. In higher-middle income economies, specifically Malaysia and Thailand, it would relatively be easier for young students who finnish their secondary education to go to colleges for higher education. SNS for online jobs can be available as long as they have mobile-phones or Tablets.

Thrugh the qualitative analysis, It would be significant to be aware that Southeast Asian economies have different social background historically. The easiest way is that the educational opportunirty can traditionally be signified as the way they have done it before. Simply put, online learning might not be acceotable in conventional culture, while the evidence of the behavior was not identified in this qualitative study. At the same time, from the aspect of poverty reduction, several economies, especially in Indochina area along the Maekong River, especially Lao P.D.R., Myanmer, Vietnam, and Cambodia, these econmoies are still in low and lower-middle income, and many employees are engaged in agriculture. Therefore, frequent face-to-face communication has been signified in small groups of communities in village or sub-urban areas. Further, I found one example of Myanmer where the monks are respected in Bhudism society. Such cultural, social, religious, and traditional barrier can cause the lives of local people to be resisit in chaning their way for modernization. In this way, It was possible for me to see the limitation of what BOP business can do for poverty reduction when facing the conventional activities, while such obstacles can potentially be changed through global communication virtually as well as directly.

No.	Income Level	Countries	ICT for Education	Completion Rate in Secondary Education	Poverty Reduction	Obstacles of promoting ICT for education
1	Low-income	Cambodia	Online Learning	Finished Primary School/ Household Work for agriculture	Online jobs with upper secondary education	Low Mobile Infrastructure/ Less teachers
2	Low-income	Lao P.D.R.	Online Learning	Finished Primary School/ Household Work for job	Online jobs with upper secondary education	Low Mobile Infrastructure/ Less teachers/ Land Rocked
3	Low-income	Myanmer	Study with monks	Finished Primary School/ Household Work for agriculture	Online jobs with upper secondary education	Low Mobile Infrastructure/ Less teachers/ Political Unstability
4	Lower-middle Income	Indonesia	Online Learning	High in Jakarta, low in other islands	Job through SNS	Internet connection due to remote areas
5	Lower-middle Income	Philippines	Online Learning	High in Metro Manila, low in provinces	Smart-phone, Tablets, Youtube	Low Internet Connection, hidden cost, i.e.textbook fee
6	Lower-middle Income	Vietnam	Online Learning	Lower completion rate in upper secondary	Job through SNS	Low Internet connection in rural areas
7	Higher-middle Income	Malaysia	Online Learning	Already improved and increasing students for colleges	Smart-phone, Tablets, Youtube	Payment of tuition fee and internet fee
8	Higher-middle Income	Thailand	Online Learning	Already improved and more students go to colleges	Smart-phone, Tablets, Youtube	Low Internet connection in rural areas

Table 8. The Results of the ICT for Poverty Reduction via Education per Economy in Southeast Asia
Note: Based on ADB(2022), Otsuka(2020), UNESCO(2022), and WDI(2022), Hara made.

7 Conclusion

This paper will focus on how to promote the BOP business development strategy by focusing on the aspect of education for poverty reduction.

7.1 Interpretations of study results and frameworks

As for RQ1, it was justifiable that the framework of how to develop the strategy to promote education for poverty reduction in the developing world needs to be formulated. Conceptually, the essences of educational “INPUT” and “OUTPIT” and business management were integrated into one concept for realizing both educational attainment and social transformation through poverty reduction in many parts of the world. Remarkably, this framework emphasizes the importance of how to alleviate poverty through human capital development.

As of RQ2, I attempted at the effects of the ICT on completion rate in secondary education and income increase by using the simple linear-regression model, resulting in the identification of the statistically significant contribution to these varaialle. Then, based on the quantitative analysis, I also employed the qualitative analysis to see to what extent the ICT can help alleviate poverty through education with the use of the grounded theory model. Consequently, three platforms of educational sequences per income level, I showed the feasibility of ICT for upgrading completion rate in secondary education. It can also be justifiable and realistic to demonstrate how well the ICT works well for addressing social issue of poverty through education descripritvely. Still, it might further be more beneficial for me to employ an interview survey to understand what is happening in these eight economies and come up with the innovative and specific ideas of how to prmomte educational opportunity for contributing to povery reduction. In these ways, addressing the pros and cons of the ICT per each economy in Southeast Asia can be contributive.

Lastly, the frameworks that I formulated in addressing these two RQs can be contributing to policy-making in each economy in two ways. Firsrtly, using the state-of-the-art gadgets can be the key items to success in mitigating poverty through education. In this regard, the frameoworks can realistically be considered for decision-making by the governments. Secondly, policy-making per income level will enable the government agencies to see where they are and how to upgrade their income levels. For them to be realistic, the framework will be workable for moving forward to the next income stage.

7.2 Limitations

Since I focused on how to make a strategy to promote educational opportunities for poverty reduction primarily in Southeast Asia, I did not see the situation in other regions, especially South Asia and sub-Saharan Africa. These areas are more serious situation, especially in improving the educational situation, and there needs to be a different approach to education and poverty. In this way, generalization of the theory need to be further brushed up with more detailed investigation.

There is no description of training in business organizations, relating to human resource development. A variety of training and education programs are available in work-sites, while the relationship between job productivity and training programs need to be further researched quantiatively and qualitatively.

Finally, skills and job-opportunies should further be studied, especially under the SNS market. Linking education and SNS can synergistically be working as a new way for poverty reduction in the LLMICs. Thus, it would be beneficial to do this research contributing to business and economic development.

7.3 Recommendations

Several recommendations can be considered.

Firstly, the acceleration of ICT should enable these economies to bottom up their economic level and approach the social issues for further development, while it should be beneficial for researchers to gain further insight into the ICT for sustainable development. Notably, the ICT's effectiveness and evaluation should further be signified in business studies. In this way, focusing on the ICT study can be recommended.

Secondly, the cultural and religious aspects should further be considered even if we study BOP business. The social and cultural background can easily go beyong or move backward theories or frameworks. It should be considerably challenging but rewarding topic to deal with BOP business studies from cultural, histrocial, or religious points of view, formulating theories for practice.

Thirdly, a mixed-method can be recommendable, but it takes considerable time for researchers to do analyses and surveys. Admittedly, the standalone quantitative or qualitative study should be available, while it would be more insightful if we employ the mixed-method once we make a beneficial research question. In this way, it would be significant for scholars to consider which methodologies to be employed in business studies.

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