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A blended learning education policy in Egypt: The road for better access and social inclusion

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A Thesis Submitted to the

Public Policy and Administration Department

in partial fulfillment of the requirements for the degree of Master of Public Policy

By

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DEDICATION

To my amazing family who supported me unconditionally, with all the love, care and sacrifice. I am forever grateful.

The American University in Cairo
School of Global Affairs and Public Policy
Department of Public Policy and Administration

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Seif Abou Zaid

Supervised by Professor Ghada Barsoum

ABSTRACT

The quality of public school education in Egypt has been on a declining slope for years, facing many challenges such as poor quality, high dropout rates and a mismatch between the market needed skills and those of students. The purpose of this study is to explore whether blended learning is a viable solution to Egypt's educational ailments, with improving equity as the focus. With no dominant literature trends on the subject or enough access to public education data, the chosen research method was to conduct in-depth interviews with national and international experts on blended learning. All interviewed experts believe that there is severe lack of equity in the system. They mentioned socioeconomic discrepancy, poorly designed policies and limiting customs and traditions as the biggest contributors to education inequity in the country. Despite being experts on blended learning, the experts have not shown blind trust in its ability to improve equity. They believe that the problems are "much bigger than to be solved by technology" alone, and emphasize several prerequisites for a successful policy: raison d'être, changing the "one size fits all" approach, political will, institutional readiness, and pedagogical development. The study concludes that blended learning has potential benefits, but also has potential risks that need to be mitigated and proactively addressed. If the prerequisites mentioned by the experts are tackled and blended learning risks are mitigated, blended learning can be the right policy for improving educational equity.

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I. Introduction

K-12 Blended learning, generally defined as learning systems combining face-to-face instruction with technology mediated instruction (Bonk & Graham, 2006; Driscoll, 2007; So & Bonk, 2010; Le Rossignol, 2009; Hoic-Bozic, Mornar & Boticki, 2009; Collopy & Arnold, 2009), is a potential solution to the declining quality of Egyptian public education, as it aims to scale high quality education (White, 2016). It is defined by the Christensen Institute as a "formal education program in which a student learns at least in part through online learning with some element of student control over time, place, path, and/or pace and at least in part at a supervised brick-and-mortar location away from home" (Christensen Institute, 2012). The institute further emphasizes its "student-centered" and "active" learning approach (O'Connor et al, 2011), which adds several benefits to the learning experience of students. These benefits include "greater perception of increased understanding" of different topic areas, higher linkages with real life, better differentiated learning for underserved students and those who are in need for remedial education. Most importantly for this study, blended learning has been commended by advocates also as a cost-efficient solution that is suitable for institutions who want to improve outcomes albeit with limited financial abilities (O'Connor et al, 2011; Christensen Institute, 2012).

The consecutive Egyptian constitutions written in this and last centuries hold the state responsible for its citizens' education (Arab Republic of Egypt, 1971; 2013, 2014). The current constitution states that every citizen has the right to education and that the state has to grant free education in "different stages in state educational institutions as per the law". It also puts the responsibility on the state to allocate at least 4% of the country's GDP to education on annual basis, and to increase spending allotments until they reach global rates (Arab Republic of Egypt, 2014). Despite growing financial, economic, and demographic difficulties faced by the Egyptian economy, this principle of free universal access has been respected by the state for decades (Lloyd et al, 2003; World Bank, 2008). Moreover, the Egyptian government's announced education policy emphasizes on "availability", which it defines as "providing equal educational opportunities for all and in all stages", as one of its three goals (Abo El Nasr, 2014). However, this commitment

was not met by increased - or at least maintained - levels of educational quality, as quality continued to decrease over the past decades. Even though several strategies were laid out, programs and initiatives were introduced, and significant international aid was provided, education in Egypt has been assessed to yield lower than international average rates of attainment, cognitive skills development and poor provision of inputs such as qualified teachers and learning resources (Heyneman, 1997; Lockheed et al, 1999; Sayed, 2006; World Bank, 2008).

The purpose of this study is to explore whether blended learning is a viable solution to Egypt's educational ailments, with improving equity as the outcome under the spotlight. Although educational outcomes are many more than equity alone (Heyenman, 1997), the study aims to adopt a focused approach to solving the multi-faceted and multi-layered problem that of education. In other words, this thesis tackles the research problem of lack of equity in the public education sector in Egypt. Therefore, the data collection will focus on understanding the status and performance of the whole system by interviewing different stakeholders who have different points of view and levels of exposure to it. Moreover, the findings should a) prove that there is a significant level of inequity across the country, b) diagnose and analyze the root causes for such inequity, c) explore different institutional, systemic, and/or policy-level solutions for the root causes and d) provide an actionable plan that takes into consideration the Egyptian context of limited government spending on education as well as organizational capacity.

My interest in exploring blended learning as the foundation of a new education policy in Egypt was inspired as a result of two sources: Firstly, I was the head of a nonprofit organization in Egypt for four years, which built a learning platform that provided educational content to more than 200,000 Egyptian public school students, using a blended learning approach. Secondly, there has been a growing trend of student-centered innovative schools that adopt blended learning as its main practice around the world. These models range from providing low cost education at $2 per student per day, to almost $30,000 per student per academic year. Those schools provide a learning and teaching approach that advocates new and relevant modes of thinking when it comes to

educational leadership, curriculum development, technology and more (Christensen et al, 2013). Granted, Egypt has to be able to craft its own policy solution that is based on its context: cultural heritage, institutional readiness, demographic structure, geographical distribution, infrastructure, and more. Therefore, this thesis is intended to account for the current situation in Egypt as well as provide policy recommendations based on the perceived context.

II. Research Problem

Egypt is facing immense challenges when it comes to its public education, such as poor quality, high dropout rates and a mismatch between the market needed skills and those acquired by students. Retention, accessibility and girl enrollment rates remain to be significant areas of improvement. Although the government has significantly improved levels of enrollment over the past three decades, which have reached around 96% for elementary schools since the 1990s, a remarkable challenge remains to exist in retention; as enrollment drops to 86% in the preparatory stage, and 66% in the secondary stage (Ministry of Education, 2014). Moreover, more than 8% of students were not enrolled in primary education in the academic year 2015-2016, which is a significant decrease in enrolment rates (Ministry of Education, 2014; 2016). Coupled with a remarkable dip in provisioned quality due to too much emphasis on increasing enrollment, equity comes to the front as a policy problem (Asaad & Barsoum, 2007; Ministry of Education, 2007; 2014; 2016).

The challenges are multifaceted and influenced by political, cultural and socioeconomic conditions (Asaad & Barsoum, 2007; Sobhy, 2012). For instance, 14 governorates have above average attrition levels of school dropouts, most of which are border governorates or those existing in upper Egypt. Rural areas had much less pre-kindergarten enrollment rates than urban areas, as the Education Ministry Information Systems reports (EMIS, 2016). Also, government official reports by the EMIS document that illiteracy rates have reached more than 30% in 2012, with the highest levels being in rural areas, amongst females and in poverty pockets all around the country (EMIS 2016). Furthermore, the government has failed to build enough public schools in the areas where

they are needed (Sobhy, 2014), equip public schools to be inclusive of special needs children (EMIS, 2016) and to make public schools free in reality by forcing the majority of secondary school students to take private tuition (Sobhy, 2012). Also, Egypt has been found to perform poorly when it comes to equity in comparison with set international standards and other countries performance (Sherman, 2007; Qadir, 2014), and falling short to empower or sustain equity-focused projects and programs (Langsten, 2016).

A. Research Question

What is the potential of blended learning in improving inequity in Egypt's public education?

B. Research Sub-questions:

- What are the factors that lead to inequity in Egypt's public education?
- What is the perception of equity in Egypt's public education?
- Is blended learning the best policy solution for improving equity in Egypt's public education?
- What is the best role of government in improving equity in Egypt's public education?
- What are the prerequisites needed to implement blended learning successfully in Egypt's public education – if any?

III. Background

The framework of this study is to identify the areas of inequity in Egyptian public school education, analyze the causes of this inequity and provide policy solutions to improve the equity gap. Therefore, it will define and contextualize three key concepts separately and then analyze the dynamics between them in the context of the study:

A. Blended Learning

Christensen Institute defines blended learning as a "formal education program in which a student learns: (1) at least in part through online learning, with some element of student control over time, place, path, and/or pace; (2) at least in part in a supervised brick-and-mortar location away from home; (3) and the modalities along each student's learning path within a course or subject are connected to provide an integrated learning experience" (Staker & Horn, 2012). This definition depicts blended learning as an

"educational program" and a "learning experience". It was also referred to by some scholars as the third generation of distance education (So & Brush, 2008), with different models that reflect different pedagogical approaches and teaching strategies. The Christensen Institute defined some of these models as follows:

1. Rotation model: in which students rotate according to fixed schedules or upon their teachers discretion between stations that teach different subjects and use different teaching methods; online, small group instruction, individual coaching, etc.
2. Flex model: learning happens mostly online in this model, with the students following a highly-personalized learning path that is supported by an on-site (i.e. in school) teacher or teachers, who use different teaching methods to aid and facilitate learning.
3. Self-blended/A La Carte model: a student learning through the self-blended model has the freedom to choose to study a full course online, which could happen on or off-site.
4. Enriched Virtual model: a whole-school experience in which students divide their time between attending a brick-and-mortar location and learning online (Staker & Horn, 2011; 2012).

Other definitions speak of blended learning more broadly, as an "instructional approach" that combines different "(a) instructional modalities, (b) instructional methods, (c) instructional technologies, and (d) delivery methods (i.e. online and face-to-face)", to meet specific objectives ranging from communication and knowledge sharing to operational issues (Akkoyunlu & Soylu, 2008; Bersin, 2004; Bonk & Graham, 2006; Driscoll, 2002).

However, the study adopts an even broader definition of the term, which portrays blended learning as a policy solution that encompasses and yields instructional approaches and educational programs that meet the above-mentioned objectives and more. The study also uses synonyms and variations of the term to address a wider spectrum in the literature review and the research, with the intention of giving the same

meaning, such as – but maybe not limited to – *hybrid learning, hybrid education, digital learning, digital education, flexible learning, asynchronous learning and e-learning.*

There is no learning theory that can claim to be the sole framework for blended learning, as an educational program, an instructional approach, or an education policy. In pedagogical practice, blended learning can be used in different ways to reinforce and reflect different learning theories (Bersin, 2004). However, the theory of Connectivism, invented by George Siemens, is found to highlight the importance of technology in learning. In his work, Siemens views learning as a process that occurs within "nebulous environments of shifting core elements – not entirely under the control of the individual". The theory also states that learning - defined as "actionable knowledge" - exists out of our brains, within organizations and information/knowledge databases (Siemens, 2005). Therefore, Connectivism proponents emphasize the need for learning to be focused on connecting "specialized information sets", and that the connections that "enable us to learn more" are more important than our "current state of knowing"; yielding technology as a fundamental component of the learning process for its ability to store and avail knowledge, and its proven impact on "rewiring the brain" to learn in different ways (Siemens, 2005; 2006; 2008; 2014). This theory relays a conviction that learning does not exist within a specific individual, organization, database, or a network of either, which paves the way for the need to 'blend' them to maximize learning (Siemens, 2005; 2006; 2008; 2014).

In Egypt, there have been a few initiatives and projects that adopt blended learning. One of them is Tahrir Academy, which was founded in 2011 to offer free online content to public school students with the aim of helping students engage more with their curriculum. It also created the "Go Teach" program that recruited and trained public school teachers who were willing to provide blended learning experiences to their students (Madad, 2014; Shams El Din; TahrirAcademy.org, 2015). Another content provider is Nafham; a free online K-12 crowdsourced educational platform that is linked to the mandated public curriculum and that presents an alternative for students who need to supplement their studies. The portal serves more than 500,000 students to date

(Nafham, 2012; 2015). Another project that is still in an early phase is Zaker, which is founded by El Ahram Newspaper (Zaker, 2016).

B. Education Policy

Public policy is defined in the study as "a purposive course of action followed by an actor or set of actors in dealing with a problem or a matter of concerns" (Hill et al, 2014, p.2). This definition provides a more liberal description of the term, as the study considers and provides a more thorough examination of the role of state and non-state actors in improving education equity, including the private sector and civil society, instead of limiting it to the state. Education Policy examines the "development of policy at the levels of the nation state and individual institutions, the forces that shape policies with emphasis on human capital theory, citizenship and social justice and accountability, and research-based case studies highlighting the application of policy in a range of situations" (Bell & Stevenson., 2006, p.1). Throughout this research study, the term "education policy" is used alternatively with its parts: laws, official government plans, policy papers by government and the leading parties, and government spending on education reports (budgets and financial statements).

The Egyptian Ministry of Education's National Strategic Plan for public pre-university education emphasizes the need for a strategy that lessens the discrepancy in education service provision between the rich and the poor, and for providing education opportunities to children, the poor, the disabled, blue-collar workers, rural area residents, slums and deserted areas (Ministry of Education, n.d; 2014). The Ministry's education policy has the following objectives:

1. "Availability: To provide equal educational opportunities for all children of Egypt through support of school construction and attention to people with special needs to increase educational opportunities for girls and support early childhood literacy.
2. Quality: reform and continuous improvement of the educational process in accordance with national quality standards.
3. Systems: the development of systems to increase their effectiveness and Institutionalization of decentralization and building information systems and monitoring and evaluation" (Ministry of Education, 2007; 2008; Abo El Nasr; 2014).

This shows that the emphasis of the policy makers on equity as an objective, even though they use different terms such as “availability” and “equal education opportunities” (Ministry of Education, 2008), which is reinforced in the official evaluation report by the ministry in 2014. The report states that the first goal of the availability objective is to expand and improve early childhood education “in favor of the more deprived, disadvantaged and vulnerable children” (Abo El Nasr, 2014).

Although it is too early to evaluate the success of the latest strategy plan and education policy of the Ministry of Education, the Ministry still has to face profound structural and political challenges to realize its policy and strategic objectives (Sobhy, 2014). Moreover, the previous national education reform plans of 1997 and 2003 had little impact on education quality (Faour, 2011).

C. Equity in Education

Educational equity is difficult to define (Sherman, 2007) and is complex (Demeuse, 2004). The complexity comes from that it is not only about what to teach, but also about how to teach and where to teach (Kraft, 2007). Even though it can simply be defined as "fairness", several different frameworks were introduced to define, study and measure equity in education. For instance, the European Union Commission published a framework for measuring equity in European schools, which developed 29 equity indicators that are guided by eight principles that influenced the normative and pragmatic aspects of the indicator creation and measurement process (European Group of Research on Equity of the Educational Systems, 2003). This framework was iterated, critiqued and developed by another group of European authors who argued that the indicators do not reflect the holistic nature of the framework itself and the complexity of equity (Demeuse, 2004). Another framework was developed by Berne and Stiefel in the early 1980s and adopted by UNESCO as a tool to measure equity in schools. The authors originally used the framework to measure equity of state school finance systems in the United States, and is seen to provide a comprehensive approach to defining and measuring equity (Berne & Stiefel, 1984; 1994). The framework targets four aspects of equity:

1. Targets of equity concerns

2. Objects of equity: access and progression, resources, and results
3. Principles of equity: horizontal equity, vertical equity, equal educational opportunity
4. Quantity: measures of horizontal equity, vertical equity and equal educational opportunity

Moreover, the first UN Special Rapporteur on the Right to Education, Katarina Tomaševski developed another framework; the "Four A" model (Tomaševski, 2001). The model considers "availability", "accessibility", "acceptability" and "adaptability" as the pillars of the "Right to Education" with is used synonymously with equity in the framework and the consequent works of the author (Tomaševski, 2001). Those four pillars are described as follows:

1. Availability: That education is "free and government-funded" there is a sufficient supply of trained teachers to provide it along with an available infrastructure (Right to Education project, 2008, Availability).
2. Accessibility: That the system is "non- discriminatory and accessible to all", and that the focus on the disadvantaged is evident (Right to Education project, 2008, Accessibility).
3. Acceptability: That the content of education is "relevant, non-discriminatory, culturally appropriate, and of quality", in safe schools run by professional teachers (Right to Education project, 2008, Acceptability).
4. Adaptability: That education can evolve and adapt to tackle the peculiarities of different communities (Right to Education project, 2008, Adaptability).

The Four A model was selected to be the framework to measure equity in education for this study. This is mainly due to the normative and qualitative essence of the framework, which ties in well with qualitative approach of the research; it seeks to explore the possible influence of blended learning on equity in the perspective of different experts and practitioners, based on their personal experiences and knowledge. (please refer to the Research Methodology section for more information).

Similar to using synonyms and variant terms for blended learning, the literature review and the research includes terms such as "The Right to Education", which could either mean the same thing or define a broader concept to which equity in education is related.

IV. Literature Review

Going through the literature on blended learning and how it integrates and/or influences education policy in general or the area of equity in specific, it is safe to say that there are no dominant literature trends on the subject. However, there are two main views on the topic of using technology to achieve better and more equity in K-12 education, which can be regarded and categorized as growing trends. These trends tie blended learning to equity, and call for – and sometimes make recommendations on - re-thinking the role of technology in narrowing the knowledge gap between the rich and the poor and to empower the middle class. The first trend supports the role of technology and sees it as a strong and viable alternative for current traditional systems that have failed to provide high quality education. The second trend embraces a more skeptical view, where it sees technology as a double-edged sword, which can either do well or harm to the education process, based on how it's envisioned, designed and enabled, and where it can be useful but not sufficient to create the needed educational reform.

To date, research on blended learning has focused more on the micro (i.e. classroom or school) – and often meso (i.e. institution, district) levels of implementation of the practice. There is a growing knowledge body on the subject that studies why and how blended learning should be pedagogically applied, how to prepare teachers and other stakeholders to adopt the concept, how to get the institutional buy-in and the different approaches to that (ex. top-down, bottom-up, etc.) and the operational/financial aspects of those practices (i.e. technology, budget, human resources, organizational structures, etc.). There is also literature that tackles blended learning -or at least technology in education- on a macro/policy level and addresses its potential impact on equity (Hamdy, 2007; Allen; 2007; Adkins, 2009; Kozma, 2011; ADB, 2012). As there have been early signs of improved efficiency and effectiveness of learning, teaching and institutional performance

using blended learning as a core practice, it is worthy to tackle the subject as a potential policy on a national level, especially due to the innate ability of blended learning practices to scale, as they depend on scalable structures and resources, be they digital content or software technology. Moreover, this ability to scale has the potential to achieve better equity for public school students, or students altogether, which is the main research question for this thesis. As blended learning has the ability to achieve higher efficiency of use of resources as well as improve learning outcomes, it may be the solution for Egypt education woes, by achieving better equity in terms of enrollment, quality standards and access to resources.

Therefore, it was better to expand the scope of the literature review to cover the research on policy solutions and interventions that are aimed at improving educational equity in general. This was beneficial as it provided more comprehensive accounts of the status of equity in education in several countries and continents and different policy interventions to tackle the issue. The literature trends pertaining to the topic under study were sometimes deduced; some papers and books were included in the literature, although a clear argument against – or even mention of – technology was not necessarily made. For instance, Pasi Sahlberg created a detailed account of the Finnish experience on reforming education over more than 40 years – 1970s throughout the current decade - in his book "Finnish Lessons: What Can the World Learn from Educational Change in Finland?". In his book, he argues for long term vision, pedagogy, and sociopolitical environment as the prerequisites for profound and sustainable educational reform. He argues further that policy makers and education leaders have to set having great school leaders and teachers as their top priority. Although technology is not emphasized upon in his book, it is rather mentioned as an effect, rather than a cause, of improvement of pedagogy and educational outcomes (Sahlberg, 2003). In a similar manner, Robert Marzano provides comprehensive recommendations on how to make K-12 public education better based on 35 years of research; without really tackling the role of technology, which can be inferred as his belief in the peripheral role of technology in reforming education (Marzano, 2003; 1-20). He rather provides several principles that he deems imperative for school reform based on the research:

1. Reform is a "highly contextualized phenomenon"
2. Producing "unprecedented gains in student achievements" is (should be) heavily dependent on data
3. Reform is an incremental change

Instead of emphasizing technology as a solution, Marzano stresses upon the contextualized nature of reform, which does not generically require a specific technology, but rather highlight the need for participatory and bottom-up approach for designing plans and programs that work within the context at hand (Marzano, 2003).

Cynicism towards or the lack of mention of blended learning - as the solution for improving educational equity - represents the first trend in the literature on blended learning adoption to improve educational outcomes; including equity. The second trend includes those who believe BL is a viable solution for improving equity, by providing evidence from case studies or theory. Some of the arguments in this trend are selectively in favor of blended learning, by choosing it as a viable policy option for specific cases, such as for students with special needs or with difficulties to commute to schools. The trend also includes literature that makes a conditional argument for blended learning as a solution. For instance, the need to clearly determine how blended learning helps an institution meet its mission and goals was highlighted as a foundation for using blended leanring (Niemiec & Otte, 2009). Others base their 'arguments-for' on the premise that blended learning will – sooner or later – become the dominant mode of learning in education, being described as the "new culture of learning" of the 21st century (Thomas and Brown, 2011), predicted to become the "new traditional model" (Ross & Gage, 2006) or the "new normal" (Norberg, Dziuban, & Moskal, 2011). Those two trends are viewed as growing and not dominant because the literature is still limited and the evidence generated to support both arguments is also still far from conclusive. The lifecycle of all blended learning practices, institution-wide adoption or policy interventions is less than 20 years old, which limits the ability to make conclusive arguments on its viability or otherwise.

A. Blended Learning Policy as a Problem, a Far-fetched Dream or a Necessary-but-not-Sufficient Solution

Another argument against full-fledged adoption of blended learning was the difficulty to implement it by the some of the wealthiest nations in the world, such as the United States (Warschauer, 2003). In a case study on New Zealand secondary schools, interviewees reported that one of the greatest barriers to e-learning implementation was a lack of technological infrastructure (Powell, 2011). This deficit may be greatly influenced by institutional leaders' concerns regarding the cost of establishing and maintaining such an infrastructure. Furthermore, an increased internal digital divide between urban centers on one side and rural and remote regions still exists in countries attempting to adopt blended learning on a large scale (Wallet, 2014, p. 9). Also, according to one international comparative study, almost every country goes through the same learning experience in implementing educational technology, by focusing on computer drills, then computer literacy then finally realizing that the main driver of success lies in real applications and practices (Becker 1993). The difficulty in adopting blended learning on a large scale raise a lot of questions about the ability of technology – or blended learning for that matter – to improve equity and other educational outcomes.

Other causes for the failure of technology in improving equity is also mentioned in the literature, one of which is that they are merely viewed as "symbolic gestures" for reform rather than real strategies or efforts. Also, other reasons include teachers' resistance due to their perception of change as imposed hierarchically (Tyack and Cuban, 1995) or by outside parties such as self-interested technology enterprises (Warschauer, 2003), having no explicit connections to instructional practice (e.g. focus on hardware rather their relationship to pedagogy), lack of opportunity for teachers to learn the new policies and their instructional implications, and a lack of program and resource alignment to the policies' intentions (Olson, Goodman, & Wyche, 2011, p. 10). These problems happen very often around the world, where it is easier to avail the hardware and software needed for blended learning adoption but much harder to cater for the social and human aspects and needs to make it successful. This increases skepticism about the actual impact of blended learning and raises questions about its ability to promote inclusion and

equality, and actually provide the basis for the argument that offering unequal access to technology deepens socioeconomic stratification (Warschauer, 2003).

Introducing technology to schools is also seen as a reason to distract policymakers from undergoing the transformation process needed for education (Kovel-Jarboe, 1997). Also, technology does not innately work in ways that benefit marginalized learners, who have to mobilize themselves and others in their communities to have technology work to their best interest (Warschauer, 2003). For example, one common fallacy of introducing technology to schools is too much emphasis on basic computer literacy in isolation from higher order skills such as composition, research, analysis, effective argumentation, and persuasion. Without those skills, technology can actually cause more harm than good. Burbules and Callister (2000, 96) point out four types of troublesome online content, to which they give the name "the 4 M's". These include "misinformation": false, out-of-date, or incomplete information in a misleading way; "malinformation": information that promotes hatred or violence; "messed-up information": poorly organized information that is not useful in any way; and "mostly useless" information: clutter that is abundant on the web. In addition, technology can promote low as well as high cognitive-load tasks and activities, so it does not lead to better learning outcomes on its own (Bloom et al., 1994; Gronlund, 1991; Krathwohl et al., 1956.). It also requires learning the "netiquette" of polite online communication (Warschauer, 2003). If marginalized learners do not acquire those skills or "critical consciousness", then it increases the possibility of being manipulated and oppressed (Freire, 1998).

Additionally, several scholars argued that changing pedagogy is imperative to improving educational outcomes such as equity, and introducing technology will not cause such improvement on its own, but will only amplify the practices that already exist (Clark, 1994; Oblinger & Hawkins, 2006; Warschauer, 2003; 2004). The argument goes further that without real change of pedagogy that results in changing assessment methods, curricula and replace rote learning as the foundation of teaching, educators will not be motivated to adopt technology to empower learning, nor will it be effective to increase learning outcomes (Kozma, 2004). Others even claim that introducing technology has not

led to improved outcomes until today, especially on the economic front by making students more job-ready or competitive in the market (Youssef, 2015).

B. Blended Learning Policy as a Solution, or a Part of one

Advocating for a theory of learning that realizes the "tectonic shifts in society" where learning is no longer "an internal, individualistic activity", George Siemens explains what he perceives as new trends in how learning happens (Siemens, 2005). For instance, he emphasizes that informal learning has surpassed formal education as the dominant mode of learning, through "communities of practice, personal networks, and through completion of work-related tasks" (Siemens, 2005). He also argues that technology is "rewiring" our brains and changing how we learn, and that it can now support or even fully take over cognitive information processing, causing knowledge to exist out of our brains, in databases, organizations and networks (Siemens, 2005). He then concludes that the "pipe is more important than the content within the pipe', which means that our ability to "plug into sources" to acquire the needed knowledge becomes a "vital skill', a more important one than the knowledge we possess at the time (Siemens, 2005).

Jason A. LaFrance detected growing trends of K-12 virtual and blended learning adoption and institutional support in all the 50 states of the United States of America, 40 of which have state virtual schools or state-led online learning initiatives (LaFrance, 2014). That also included federal-level adoption and support. Many of the programs, according to LaFrance, blend online and face-to-face learning, instead of being entirely online. This growing use is highlighted as a proof of the different merits of using blended learning (LaFrance, 2014).

Furthermore, success of blended learning (or integrating technology in education) has been dubbed as conditionally successful, and credited to different factors. Warschauer mentioned four resources as agreed upon enablers by experts and researchers to the real use of technology for improving equity and social development:

1. Physical resources: encompass access to computers and telecommunication connections
2. Digital resources: refer to digital material that is made available online

3. Human resources: revolve around issues such as literacy and education (including the particular types of literacy practices that are required for computer use and online communication).
4. Social resources: refer to the community, institutional, and societal structures that support access to ICT (Warshauer, 2003, p. 47; Alchholzer & Schmutzer, 2001; Carvin, 2000).

Coupling strategic alignment with strong evaluation frameworks and practices was also mentioned as a pivotal factor of success of blended learning (Dziuban et al, p. 17-37, 2011). Less focus on hardware and equipment and more focus on getting the buy-in of the schools' stakeholders was also highlighted as a factor of successful educational technology programs (Potashnik, 1996). This happens through creating coalitions between the schools and communities, delivering long-term teacher training programs, empowering teachers, schools and districts to become more autonomous. Moreover, engaging all social actors to press for change is paramount for blended learning success, considering the relevant political, economic and cultural contexts that help shape classroom learning and teaching (Potashnik, 1996). Reaching more equitable education outcomes through blended learning needs the buy-in of the beneficiaries and stakeholders that blended learning is a solution (Mikre, 2011).

Frameworks for success have also been suggested, by specifying several stages towards successful blended learning adoption on an institutional level, ranging from awareness of need and exploration of solutions to actual implementation and sustainability of innovation as a norm in a given organization, by introducing structural, budgetary and conceptual changes and managing the processes behind them (Rogers, 2003; Means et al., 2009; Graham, 2013; Means et al., 2013; Staker, 2011; Staker & Horn, 2014). In those stages, progress necessitates that the institutions have aligned blended learning to solve one or more significant institutional challenges such as a period of rapid growth, desire to give access to more students, lack of physical infrastructure, desire for increased flexibility for faculty and students, etc. Setting clear goals for blended learning on the institutional levels – including those of improving learning outcomes - was often mentioned as critical, frequently pushing adoption of BL as a

solution to other challenges as well, such as growth, cost, or flexibility or to improve student learning (Rogers 2003).

Another important prerequisite for success is infrastructure, which is often emphasized as a critical factor to integration of technology into education. This argument is solidified by a strong correlation between internet access and national economic development, without enough proof of a causal link (Olson, Goodman, & Wyche, 2011, p. 26). However, several authors argue that introducing infrastructure is necessary but not sufficient. The social context, education and technical knowledge of the individual user are also mentioned as important elements for increased learning outcomes using blended learning. Thomas Arnett of the Christensen Institute argues that blended learning alone does not guarantee good learning outcomes, although it does enable "speed and maneuverability". He emphasizes the need for student-centered learning as the cornerstone for effective pedagogy (Arnett, 2014). For others, providing teachers with the right combination of technology, pedagogy and content knowledge is imperative for good quality education. For instance, the "TPACK theory", a framework that identifies the knowledge required to design and implement successful blended learning models, argues for building educators' knowledge with a high degree alignment of three aspects: content, technology and pedagogy (Koehler, 2009). Same do the proponents of the "Technogogy" theory, which advocates for the use of technology in a transformative manner to foster learning (IDRUS, 2009). While there is no blueprint for a successful design or implementation of blended learning, class duration, size, location, availability of technology, and course objectives are cited as important aspects to give attention to for its success (Bonk & Graham, 2006).

Other authors tackled blended learning as policy for improved equity from different angles, such as the use of technology to provide improvements through non-formal programs that could be mobilized by the public as well as the private sector. In "Private Tutoring in Egypt", Nelly El Zayat speaks of online tutoring as a viable policy option, where she makes an argument for the potential of online tutoring, based on the significant increase in the number of internet users and consumption per capita (Zayat, 2010). Other authors state the cost of internet access in Egypt has become very low; with the cost

reaching 50 cents on average per an hour of internet access at an Internet café in Egypt (Peterson and Panovic 2004), which paves the way for increased accessibility to knowledge and education. Other arguments for the use of technology include serving special need students, increasing energy expenditure in children through computer-mediated physical activity (Lau; 2015), and remedial support (Picciano, 2012).
It is argued that new approaches to teaching such as student centered and blended learning offer considerable possibilities to enhance the student experience, but only if proper attention is paid to integrating the 'new' and 'old' aspects of teaching, as well as to the development of appropriate administrative systems and support.

C. Other Alternative Solutions to Inequity in Society and Education

The Organization for Economic Cooperation and Development in Europe developed a seven-step guide to improve equity in public education through a national policy intervention. The steps include ensuring early tracking of inequity issues (i.e. socioeconomic gaps, domestic violence, special needs, etc.). This is followed by carefully looking at curriculum, resource, facility, and other management decisions that might lead to a higher probability of inequity. Another step is to tackle possible dropout cases and offering creative alternatives for them, and then offer second chances to gain from education. An important step is also to identify and provide systematic help to those who are lagging behind, strengthening the relationship with the disadvantaged children's parents to bridge the gap, and finally actively seek to include everyone within mainstream education regardless of their background (Simon, 2007, 15-19)"

Other authors offered different explanations for why inequity happens and how it can be tackled. One of those authors is Paulo Freire, who advocated for the empowerment of students to take action against inequity and other forms of social injustice (Freire, 1996; 1998). He argued that once students and teachers are able to recognize and reveal the socioeconomic conflict, they are able to challenge the status quo and influence change (Freire, 1998). He further argued that the recipe for this to take place is that students become active participants in their learning process, in a way that respects their own personal experiences and cultural contexts. This is rather than the students just becoming recipients of transmitted knowledge, a phenomenon which Freire called "banking

education" (Freire, 1996; 1998). This process of self and social reflection in education is called "conscientization'' by Freire, where teachers become agents of change through influencing and motivating students to unveil the sources and causes of inequity and other forms of oppression in society (Freire, 1998). This "teaching for social change" was adopted by many schools around the world, with best practices being identified as having a "committed, highly skilled, and self-reflective teaching staff", being small-sized schools, and having democratically run administrations (Kraft, 2007).

D. Literature Analysis

The literature on blended learning and – more generically – integrating technology in education is divided on its potential impact, albeit limited in range of topics and objects of study. As most of the literature found is focused on the western world, with some mention of Latin America and Africa, the literature falls short on providing enough insights on blended learning in Egypt or the potential impact of its use on improving equity. The literature is also far from conclusive on the effect of blended learning on educational equity. This reinforces the need for more primary research methods to acquire first-hand insight into the topic in a contextual manner that serves the purpose of the study.

V. Research Methodology

The study focuses on exploring and predicting the viability of blended learning as a potential solution to Egypt's education inequity. This, by design, limits other methodology options, as the exploratory approach of the research and its exclusive nature necessitate acquiring firsthand insights to enrich the purpose of the study. In addition, there was limited literature on blended learning as a potential solution for Egypt's education ailments – including inequity, which influenced the decision to take a qualitative approach as the main research method even more. Therefore, the chosen method was to conduct in-depth interviews with experts and practitioners who advocate for the use of blended learning, and/or have made serious attempts towards its adoption within their learning environments, institutions or on national levels.

In-depth interviewing was expected to enable more profound understanding of institutional and government-level adoption of blended learning, while probing the interviewees on what abstract concepts and lessons can be drawn from their own – concrete and specific – experiences. In order to give the participants the safe space to share their personal experiences within or with the government, and to ensure their protection from any potential risks, all the interviews were conducted on basis on anonymity. It was imperative to interview experts who have significant experiences in using technology to improve educational outcomes, most importantly equity. Therefore, interviews were done with experts from other countries, mainly from North and Central America, to get insights on the potential role of technology (and blended learning) in reducing equity as well as collect the lessons learnt from their experiences. It was also necessary to gain insights from practitioners with firsthand experiences in Egypt. This has enabled for drawing several parallels and identifying patterns that can work as 'don'ts' and 'do's' for implementing technology successfully to reduce inequity.

To ensure the validity of the research, a considerable effort was done to select experts with a widely-recognized track record in the field of blended learning and/or education, either on the national or international levels. The track record included published studies, published books, and/or verifiable personal experiences of starting schools or education initiatives and projects. Moreover, identifying patterns and common themes in the findings was also done, following the concept of triangulation (Creswell & Miller, 2000). Furthermore, the author of the study possesses the ability to judge the quality and validity of the shared insights and information in the interviews, having had prolonged observations in the field for more than 6 years, both as a practitioner (as part of blended learning organizations in different capacities) and a researcher doing this and other studies.

It is important to say that most of the interviewed experts share a normative approach towards education, viewing it as a right and a public good. This, granted, influences the findings, as most of the views take a human-rights or a political angle rather than an economic one. Also, the interviews were conducted in a flexible manner,

allowing for a lot of probing and unstructured conversations. The whole study is approached through a normative lens, which is adopted by the author to address the underlying motivations behind Egypt's education policies and decision making towards the subject.

Granted, not all the experts quotes were included in the study. The quotes and ideas were selected on basis of relevance, depth, validity and context. The data analysis was done through identifying the commonalities and differences in the experts' views, in order to generate as much generalizable evidence as possible on whether blended learning is the solution for inequity in education. Most of the analysis was straightforward, as several common themes were found in the experts' interviews, even though they come from diverse backgrounds of professions, interests, nationalities and experiences.

Those concepts and lessons learnt from the experts are used to inform education policy makers about the viability and challenges of blended learning if used to improve equity in Egypt. It is also backed up by secondary research on the reasons behind success and failure in blended learning practices, although it tackles the topic in a grander scheme rather than equity alone, as mentioned above. Findings are analyzed on three levels: strategy, structure, and support. The *strategy* level includes matters related to vision, strategic objectives, and long-term plans of using blended learning to improve equity, *structure* deals with technological, pedagogical, and administrative aspects, and *support* tackles how institutions facilitate blended learning design. The resulting matrix provides an illustration of how institutions evolve on these dimensions as implementation matures (Owston, 2013).

Participants ranged from leaders with significant experience in institutional adoption of blended learning to teachers who have implemented blended learning in their own learning environments. Interviews will also be conducted with policy analysts and makers, parents, teachers and NGO members to understand their views on the topic and how their own perceptions, biases, experiences, goals and skills can enable/disable Egypt's adoption of an effective education policy, based on blended learning.

The goal from conducting in-depth interviews with experts was to approach the research question holistically. Henceforth, it was important to compile a list of participants who tackle blended learning from the three above-mentioned levels: strategy, structure, and support:

- An educational technology expert with years of experience in creating learning platforms and providing consultancy and professional development services to educators and education leaders who want to build blended learning schools. The expert has experience in the United States as well as Egypt through her involvement with the Ministry of Education and the Presidential Specialized Council for Education & Scientific Research on advisory basis
- A blended learning expert with vast experience in transforming public schools into blended learning schools in poverty-stricken areas in the west coast of the United States of America who is currently a partner in a school found that aims at empowering innovative schools all over the world.
- A head of an innovative blended learning school in the United States
- A senior researcher in a renowned research center in the United States with a focus on blended learning
- A professor of practice of education in a renowned university in Egypt with a wealth of experience in community-driven and grassroots education initiatives in the nonprofit world as well as significant experience in working with policymakers and politicians
- A former public preparatory school math teacher who experimented with blended learning in her classroom in collaboration with TahrirAcademy.org; a nonprofit online portal that provides Arabic educational content to public school students.
- A public-school teacher who also implemented blended learning in his classroom with TahrirAcademy.org in Cairo
- A public-school teacher from Fayoum, Egypt who also implemented blended learning in his classroom
- A public-school teacher from Tanta, Egypt who implemented blended learning in his classroom

- A senior official in a government educational authority
- A university professor and research in the field of educational technology in Egypt
- A university professor who is focused on blended learning practices research in Egypt and the region
- A teacher trainer on innovative teaching methods and a PhD candidate

A. Interview Guiding Questions

1. How do you define equity in public education?
2. What are the factors that lead to inequity in Egypt's public education?
3. What is your perception of equity in Egypt's public education?
4. What do you think about blended learning as a policy solution for improving equity in Egypt's public education?
5. What is the best role of government in improving equity in Egypt's public education?

   What are the prerequisites needed to implement blended learning successfully in Egypt's public education – if any?

VI. Definition of Equity in Education

Many of the participants tackled equity in education is a normative question, not a realist one. One of the participants is a committed advocate to the right to free and high quality education. The other, who shared the same perception, has invested a significant part of her career building a grassroots solution for education inequity, which depended on community efforts first and foremost. She had a clear definition of equity in mind:

> *Equity is not to give everyone the same service. It is going the extra mile for those who are in more need. Education is and must continue as a public good (Public Education Reformer, September, 2016).*

This definition aligns with that of The Organization for Economic Co-operation and Development, which gives equity two dimensions: The first dimension is fairness, which necessitates that factors such as socioeconomic status, gender, or ethnicity must not impede a person's access to education. The second is inclusion, where a "basic minimum standard" of education has to be ensured for all (Simon, 2007). It also aligns with the 4A

model, which is adopted as the definition for equity in education for the purpose of this study. More specifically, the pillar of "accessibility" in the 4A model necessitates that education must be "accessible to all, especially the most vulnerable groups, in law and fact, without discrimination on any ground, including race, color, sex, language, religion, opinion, origin, economic status, birth, social status, minority or indigenous status, and disability". It also states that education has to be affordable to all, and emphasizes eliminating school fees and indirect costs as a responsibility of the state (Right to Education Project, 2008).

However, the nature of equity was perceived and expressed in different ways by the experts, who did not only see it as a value or goal to be sought-after. A participant with a significant research background in education technology and its impact on learners, also sees equity in education as a process:

> *One important, amongst the numerous, definition for equity is the elimination of false assumptions. The process of accepting and working upon the fact that not all students would excel equally and to their maximum potential when subjected to the same method of teaching or conversing (University Professor and Digital Pedagogy Columnist, September, 2016).*

This definition is echoed in OECD's description of equity as well, as the organization argues that those without the skills to "participate socially and economically" suffer greatly and on the long term, and that equity in education "enhances social cohesion and trust" (Simon, 2007), giving it an element of continuity as it needs to be worked on for a long time rather than achieved as a time-bound outcome.

Other experts argued for the holistic nature of education, and that equity cannot be decoupled from other factors that highly affect, and get affected by it. For instance, one expert emphasized that equity and quality are really tied, and that "closing the [equity] gap" happens through providing quality.

VII. Factors that lead to Inequity

Several interviewed experts saw socioeconomic discrepancy as a significant contributor to inequity. They also believed that aspects such as poor nutrition and improper sleep

were curtail the efforts of enabling a level-playing field when it comes to learning. They also argued that "inequity arises when those responsible for the education process assume that all learners are the same":

> *Access and affordability affect equity. If a school is too far from where you live, it makes it a lot harder. Lack of stimulation, warmth and safety at home affect your learning. If you do not have them, you will not have enough confidence and you will not learn (University Professor and Digital Pedagogy Columnist, September, 2016).*

Research on the effect of maltreatment at home does support the expert's argument. Child neglect was found to be a critical type of maltreatment, was it was associated with language delay in a study by a group of psychology researchers, who also found that neglected children performed the least amongst maltreated children in their study. The researchers also generated evidence that maltreated children performed significantly lower their non-maltreated peers in school, and had significantly more misbehavior issues (Allen & Oliver, 1982; Eckenrode et al., 1993, p.53-62).

To attain equity, a teacher, a leader, or a policy maker should not strive to give all students the same service, according to participants; it requires "going the extra mile" for those who are in more need. One expert mentioned that the teacher should never assume that one thing should work for all the students the exact same way, citing that even linguistic and cultural aspects can affect equity. The expert mentioned an example from an international learning experience where half the participants came from the Middle East and the Arab world and the other half came from the West. Both had an American facilitator who – naturally – had inclinations towards a western culture and is fluent in one language that half of the participants master and not the other. This language limitation gave the fluent participants a privilege over the others when it came to learning (University Professor and Digital Pedagogy Columnist, 2016).

VIII. Perceptions of Equity in Public Education in Egypt

It is safe to confirm that all participants who are experts in Egyptian public education or had firsthand encounters with it share the belief that there is severe lack of equity in the system. Although the Egyptian constitution "speaks well" of the right to education and

the responsibility of the government to provide strong and free public education, they believe that implementation is really missing and misplaced (Education Rights Researcher, 2016). Most of them also questioned whether there is a will to improve equity to begin with, and some even argued that the inequity is intentional.

> *If we want quality education, transparency explaining the issues and considering alternatives [is needed]. [Egypt] is one of the hugest educational systems in the Middle East and Africa, and insisting on free education for all when it is mostly cosmetic when sixty percent of the money spent on education goes for private tutoring…so we are living in the illusion of free education and what students are getting is not free, and those who need the free are not getting the education (Blended Learning Professor and Researcher, September, 2016).*

This opinion is backed up by official records and research, as many public schools still require fees – albeit nominal – for their services and spending on private tutoring has reached as high as 60% of the aggregate spend on education by Egyptian families (Zayat, 2010; CAPMAS, 2016).

One of the participants expressed a strong belief that equity is overlooked in Egypt, using different examples such as the university admissions process 'Tanseek'. For the participant, the process was designed to discriminate against and create disparities between people. Also, the expert claims that the presence of a political science college only in Cairo reflects another form of inequity; which is also echoed in the lack of resources provided for Law schools around the country. The same applies for the students with disabilities, who are not provided with opportunities in Egypt whatsoever, even if the law says so, just because they will cost more and the government cannot afford to pay more. Finally, the expert argues further that the centralized structure of the state, including educational institutions, gives an unfair advantage to Cairo and close governorates over the governorates that exist at the periphery, and even claims that it is intentional for the state to destroy equity and benefit some social groups over others:

> *"Students in upper Egypt who are not encouraged to go to schools, because their schools are neglected, their teachers are not well paid, and many of them are forbidden to go to school due to cultural traditions, especially girls. Schools of Law and Social Sciences are neglected and*

> *looked down upon to reinforce lack of critical thinking (PhD candidate in Education Practices, September, 2016).*

Official counts of the number of colleges teaching social sciences in Egypt confirm that opinion, as the number of social science faculties is way lower than its counterparts, while law faculties do not require competitive scores as a criterion of admissions (Bashshur, 2004; EMIS, 2014).

Another expert supports the argument that a centralized education system contributes to its inequity. She cites cases of children who come from rural and/or poor areas, where kids are malnourished and hungry, have parents who sometimes do not know how to read or have never been to school, or are forced to drop out of school because of economic issues or schools being only available in remote areas (Blended Learning Professor and Researcher, 2016). Supporting her argument, an expert explained how she realized that the equity gap "was even bigger" when she worked at the government level than when she was in school. In her opinion, she was unable to comprehend how the work was even done without accountability measures; the Egyptian labor law does not allow firing underperforming or incompetent people once they are hired.

She also described the existence of a culture of "we do not really care about solving the problem", and where employees just want to look busy working in front of grant donors who demand accountability and results, even if results are deteriorating in reality. Since – according to her – only outside forces demand accountability and use their leverage of providing grants, the government's focus becomes more about "hitting the targets set by the grant donor" rather than Also, she observed that there were "too many people than needed", and that created problems because they wanted to protect their space, and nurtured a sense of "competition than collaboration". She also criticized a culture of "terrible corruption", as no rules were actually enforced. Reflecting on her own experience working for schools and collaborating with government agencies in both Egypt and the United States, she observed that U.S. districts were empowered to tackle equity issues. In Egypt, on the other hand, the system is top-down and decisions come

from the Ministry to the Directorate then to the schools with a great deal of imposition as if they "do not have a brain!"

A. Challenges Facing Education Equity in Egypt

The interviewed experts agree that there are many background issues that influence equity. They cited many projects in Egypt and other countries that had potential but ended up failing, including those using technology as a means. Mentioned reasons of failure included wrong approaches, inability to contextualize best practices or solutions, lack of willingness, lack of readiness, poor oversight, lack of an inspiring and holistic vision, and/or bad governance.

> *Trying to introduce blended learning without addressing certain issues about teacher quality, teacher freedom, governance, or decentralization so in a sense our policies are patchwork but their core problems are not at best and so many of the projects that we engage at a national level are cosmetic in nature and are not sustainable (Blended Learning Professor and Researcher, September, 2016).*

Several other experts also shared the same belief; that trying to introduce blended learning as a policy without addressing the core issues means that Egypt's education policies are "patchwork", are cosmetic in nature, and are not sustainable. There is a lack of policies that address the core problems and enacting them would require courageous leadership (Education Technology Expert, 2016; University Professor and Digital Pedagogy Columnist, 2016).

Governance

Regarding governance, there was a shared belief amongst the interviewees that the government is not transparent about educational issues. One expert mentioned that the government reports indicators and results that "do not make any kind of sense", because they show a much better picture than reality. This forces her organization to create a parallel report to "communicate the right picture" (Education Rights Researcher, 2016). Lack of accountability is another factor, where a balance between motivation and accountability does not exist, and where many employees consider government employment as the alternative to not having a job or having a job with a pension plan but

without too much load. One of the interviewed experts indicated that she faced huge challenges with her work with government through direct employment as a consultant and as part of an international NGO:

> *A few teachers were willing, some were skeptical and the majority were indifferent. That, along with lack of vision and leadership, creates 'many inefficiencies' and has reinforced the already persisting ailments over the past few years (Educational Technology Expert, September, 2016).*

Another expert mentioned "big struggles" with the Ministry of Education that curtailed her efforts to kick off a nationwide education initiative in its first few years, where they had "enemies of success" who were really trying to hold them back. Her successful initiative led to an official endorsement from the government. However, she indicated that the transition of the initiative from a societal to a governmental program was abrupt and did not happen the right way, using an analogy that it was like putting an "adopted child in a fostered home" without giving the transition time (Public Education Reformer, 2016).

Government decisions regarding budget allocations and distribution was described as one of the biggest reasons behind education inequity in Egypt. This is because spending on education is below the international average, and it is also becoming less due to inflation and the devaluation of the Egyptian pound. While the allocated financial resources are scarce in the expert's opinion, he believes it is also allocated in the wrong way, as it is unjustly and unjustifiably directed towards areas of less priority, such as: school contractors who build schools at excessive figures, or publishing houses that print school books that can be digitized or reused (PhD candidate in Education Practices, 2016).

Failing to embrace or execute scalable solutions is another challenge cited by the same expert. He mentioned cases where directorates and schools had the funding to get computer hardware that enables students to access digital content at a fraction of the fee of print books, a few of the teachers and students were taught how to use it, the hardware had basic software that did not provide an upgrade to the textbook, and the schools lacked

internet to use the hardware or access the content (PhD candidate in Education Practices, 2016).

Culture and Social Contract

Gender bias was also mentioned as a cultural bottleneck in the face of improving equity in public education, as boys are given privileges that girls are not:

> *Boys are allowed to go to internet cafes, where they can get a good internet connection and use a computer while the girls usually are not. The same situation, happens at many homes, where parents do not want the girl in the house to stay on the computer for a long time, but still let the boys do that (University Professor and Digital Pedagogy Columnist, September, 2016).*

Another argued that a significant percentage of girls in upper Egypt are not expected to go to school, which hinders their access to economic opportunities and social mobility. In addition to the problem itself, the expert argued that the government's negligence towards the problem aggravates it further, as they do not exert the needed effort to understand the reasons behind the cultural customs and traditions or design policies to change them (PhD candidate in Education Practices, 2016).

In addition to government-infused and cultural issues, several experts advocated for the need of a societal discussion on how to integrate different stakeholders in society and empower them to provide solutions for the equity problem. This should happen by empowering and enabling them to participate in the process of policy making and raising awareness on the different impacts of their decisions. A good example mentioned by one of our experts was the community schools, which were created by several local and international agencies, including UNICEF, to provide "seven-star stellar education", and to "make up for the socioeconomic disadvantage that students" come with. The expert emphasized that although the Canadian and Egyptian governments invested in the project, the local communities made the biggest contribution; because they provided the lands and the buildings. as they believed in their importance. The first four community schools faced resistance, as it was hard to convince the community that the schools were good for them. However, they appreciated that the organizations behind the schools

reached out to them. After gaining the credibility of the first four communities, the phenomenon flew, as the expert mentioned (Public Education Reformer, 2016).

Today, there are thousands of community schools around Egypt, and they are endorsed under an official government program (MOE.gov, 2016). The experts shared the common belief that a lot of the future and hope for Egypt will come from grassroots initiatives such as the community schools and other, founded by people wanting a better world, better education, and looking for an influential role to play in society. Coupled with a strategy for mainstreaming and scaling through partnerships, networking, and collaboration with government, which helps the initiatives get more funding, reach and technical support, grassroots initiatives can fill in the equity gap (Public Education Reformer, 2016; Founder of an e-learning initiative for public schools, 2016).

This should open the door for decentralization according to several experts' views, in which people affected by the status of education become the stakeholders and the decision makers. The experts were critical of centralization; one of them questioned the logic behind mandating students of 27 governorates from Nubia to Alexandria to go through the same exact tests (Education Rights Researcher, 2016). Moreover, one of them criticized centralized planning, arguing that one "cannot come up with the national plan in a room" if policy makers want it to be embraced and implemented by government agencies and civil society. Another was really against giving accountability over every student in the country to the Ministry of Education instead of the local authorities or schools, describing it as an "insanity" because the do cannot tackle the peculiarities of different governorates. However, they still agree that some decisions have to stay centralized, such as the allocation of budget, development of accountability measures, and the process of incorporating research and development in developing education. Several of them also emphasized that decentralization will only work under the condition of having a homogenous society with "benevolent leaders" who are really committed to making things happen, which they argued to be inexistent in Egypt (Education Technology Expert, 2016; PhD in Education Practices, 2016).

Pedagogical Issues

A more pedagogical issue cited by one of the experts as a challenge to reducing inequity is the nature of the learning experience. For instance, aspects such as language and/or dialect preferences and time zones are hard to deal with and predict. Therefore, it becomes harder to plan a solution that works at scale that is multimedia heavy or synchronous heavy, because the students do not have equal access (University Professor & Digital Pedagogy Columnist, 2016). While this challenge may not be Egypt-specific, it is still an issue that needs to be addressed as it can compromise equity significantly.

IX. Government Responsibilities in Improving Equity

The interviewed experts believe that it is the role of the school to make up for lack of equity, by focusing more on those who are disadvantaged and offering real quality to make up for issues such as lack of stimulation in their early years for example. Another role that an expert deemed important for the government is to collect and avail accurate data:

> *The [Egyptian] government is not agonized about the bad quality of education, and they resort to sweep[ing] the data under the rug. The Minister of Education during 2011 did a literacy-evaluation study with USAID that showed a high percentage of illiteracy amongst primary school students. However, the minister still pushed for the students to pass their exams to avoid overcrowded classes in the following year, and ignoring the data (Education Rights Activist, October, 2016).*

A third important role for government shared by the experts is setting goals and providing evaluation frameworks for all the stakeholders engaged in improving education equity:

> *What you measure ends up being the most important thing, as it drives people's motivation. When Egypt was facing challenges with enrollment, grant donors pushed them to focus on enrollment numbers only. This in turn influenced government employees to push enrollment through penalties and other measures just to reach the targets, which affected quality a great deal; with overcrowded classes and more issues (Education Technology Expert, October, 2016).*

The OECD report mentioned above makes a similar argument for the importance of designing for fair and inclusive education systems (Simon, 2007), out of the conviction that setting the right goals, which prioritize equity improvement, is imperative for policy success.

X. Blended Learning as a Policy Solution

Although most of the experts come from a background of education or education-technology, they have not shown blind trust in the ability of technology to improve equity. They mentioned several positives but also warned against a number of negative points that could either reinforce inequity or hinder the efforts to curb it:

> *It's the way Blended learning is applied that can prove whether it's a decisive solution to inequity or not". When it comes to education, you can't always decide based on what the best solution is relative to the other proposed ones. You must plan it according to the least common denominator. If your plan eliminates one child or member from it, then it shouldn't be a feasible option (Blended Learning Professor and Researcher, September, 2016).*

This conviction that implementing blended learning does not provide a guarantee of success was a shared sentiment amongst participants. However, the experts emphasized several positives of blended learning. The first advantage of blended learning highlighted by the experts is its potential to personalize learning. Personalized learning, according to the experts is an enabler of equity because attaining it requires understanding the peculiar needs of the students. That includes their demographic profiles, interests, lifestyles, preferences and more. According to several experts, standardized and paced instruction "does not meet individual student needs", as it makes it hard for teachers to address "differences in learning needs" and design learning experiences that cater for the "common denominator" of most students (Former Director of Innovation in a network of U.S. public schools, 2016; University Professor & Digital Pedagogy Columnist, 2016).

An expert who was successfully transformed a network of public schools in the United States into blended learning schools, who is currently in charge of a private fund dedicated to finance innovative schooling, provided several insights for as well as against using blended learning to improve equity:

> *The decision to utilize blended learning depends on what the problem is. If the problem can be solved in a different way more successfully, then blended learning is not necessary ((Former Director of Innovation in a network of U.S. public schools, September, 2016).*

She believes in the potential of a useful role for technology in education, but thinks that role varies depending on the demographics of the students being served. Henceforth, she does not think her previous school's model is for everyone by any means, and that there is a lot of room for a lot of different models. When asked about what blended learning could mean for students, she described it as:

> *A really compelling way to get students individualized practice and feedback that they were not getting. It is individualized in that a student is doing something "on their own path at their own pace while they are on the computer". However, [it] cannot be successful without significant contribution from the teacher, looking at the data generated about student profile and behavior, encouraging the student to hold on to that trajectory of personalized learning, celebrating the student's successes online, and more (Former Director of Innovation in a network of U.S. public schools, September, 2016).*

An expert with significant research-based knowledge about blended learning agrees that it is not useful in its own merit. She mentions that it is "definitely one of the solutions that would help education in Egypt at least even if it goes traditional" if it provides the students the opportunity to access high quality engaging content. However, if blended learning becomes advanced in a way that does not make it accessible for minorities and low-income group, the expert argued that it will contribute to having more students falling further behind (Blended Learning Professor and Researcher, 2016).

A similar point was raised by a researcher who is vested in studying digital pedagogy, who argues that a certain threshold exists where – if passed - technology becomes empowering and reduces inequity. She made an analogy using her own experience. She speaks English, has internet access, has access to a credit card, and is digitally literate. At this threshold, technology is empowering her as a woman in her country, because it gives her access to resources and knowledge that people without the aforementioned privileges do not have access to. Those whose resources are below the threshold, like those for example who do not speak English, do not have good internet access, or have no internet access, become at a disadvantage and the existence of blended learning could reinforce their lack of opportunity, hence increase the inequity gap (University Professor and Digital Pedagogy Columnist, 2016).

An expert with exposure to government-led education technology initiatives and programs in both Egypt and the United States shared the conviction that blended learning success depends on the "policies we create and the goals we set for it" (Educational Technology Expert, 2016). A similar point was raised by another expert, who is invested in blended learning research, being part of one of the influential research institutes in the field in the U.S:

> *Blended learning to education is like wings to an airplane. While wings are important for the airplane, just having wings does not mean the plane is going to fly. One has to look at how the wings are used, where the engine is placed and how the pilot is empowered and trained (Blended Learning Researcher and Writer, September, 2016).*

He insists that the right reason for employing blended learning has to be increasing students' learning outcomes. - whether on the school or government policy level:

> *Blended learning could be a good enabler of a good pedagogy, which is the main aspect for using technology right, and [if implemented effectively] it has potential to improve student achievement, basic knowledge, develop more efficacy into learning, non-cognitive skills, and lots of potential benefits. In this environment, students will learn content and skills online while learning high order thinking skills from interaction with their peers and teachers. Also, students' progress will be mastery-based instead of testing-driven, where they progress when they show mastery of the knowledge and skills they have been working on acquiring (Blended Learning Researcher and Writer, September, 2016).*

This is the education program that the expert's institution thinks blended learning is enabling (Christensen Institute, 2016). A practitioner of blended learning shares the same sentiments, as he sees that technology can help the students learn more and better, and acquire life skills, because of the diversity of its methods and tools" (Educational technology specialist; 2016).

However, experts also argued that blended learning can still go either way, as it can lead to "better and differentiated instruction" and it can also lead to "reinforcing the same practices" (Blended Learning Researcher & Writer, 2016). Along the same lines, a list of questions was raised by some of the interviewees – being researchers in the field - that provide context for identifying a clear scope for blended learning use:

- What do you mean by blended learning?
- What problem are you trying to solve by introducing blended learning?
- Will blended learning help students on all fronts?
- How are you directing blended learning innovation to serve learning?
- What are you blending?
- How are you blending it?

These questions were shared with other experts, who took the initiative to answer some of those questions, both in a generic manner and in relevance to Egypt's current context. Some advocated for blended learning, mentioning that its real power lies in its ability to empower teachers with the tools to meet the students where they are at, and help them really excel. They also referred to its ability to "free up teachers' time, helping them spend more time with their students, to help them set their goals and mentor them".

XI. Blended Learning: a Priority or an Option

As they analyze the educational problems in Egypt, experts mentioned socioeconomic discrepancy, poorly designed policies and limiting customs and traditions as the biggest contributors to education inequity in the country. They mostly believe that these problems are "much bigger than to be solved mainly by technology", which can be thought of as a double-edged sword than can serve to either enhance or hinder equity based on the person at stake. For one of them, blended learning mainly solves a logistical problem, as it helps those who cannot attend schools/universities on regular basis. However, it has a problem in that it lies primarily on numbers of hours spent learning online and that could be a problem for those who have difficulties performing or learning at a certain pace, because each person has his own reading-writing-interacting pace that he/she is comfortable with. She maintains that no "size fits anyone" solutions would work (Blended Learning Professor & Researcher, 2016).

In her view, this is due to the fact that different places in Egypt and the conditions are different. The challenges of education in Egypt in different areas are different, and so understanding the context and working with the context is different. She cites the project of one laptop for every child, championed by the Egyptian government, as a testament to

her opinion, as the project entailed uploading a PDF version of the textbooks on the student laptops, without any changes done to book content, methodology, or even delivery methods (rather than it being a soft copy of the book). That, for the expert, is an example of how technology fails to solve a problem in terms of quality because of the way it is used. Giving every child a laptop without teachers knowing how to use it in a way that promotes skill building, creativity, and critical thinking is a way of recreating the same problem (the same kind of education), albeit in a more elegant way, according to the expert (Blended Learning Professor & Researcher, 2016).

To show the potential of technology, a blended learning researcher shared the findings of his institution on parents' perceptions towards schooling, where it was concluded that online/virtual learning was never going to reach more than 10% of the student population in the U.S, as parents still want to send their children "somewhere to learn" while they are at work, rendering the custodial role of the school as important as its educational one and maximizing the necessity of having a "brick-and-mortar location" and the potential of blending it with an online experience. Also, their findings suggest that students need face to face interaction with teachers and peers. These factors negate the potential of what the research institution depicts as a "disruptive model", where students learn completely online. Blended learning was their answer, as it is "online learning happening away from home". He further elaborates that the potential for blended learning lies in "experimenting in the areas of 'non-consumption'", when the alternative is "nothing at all", such as students who failed too many times to attend school, or who are medically unable to attend regular schools. He noted that they witness online learning happening in these areas out of necessity and limited options. For them, this is an area where technology can be tested and honed down, and then it will become mainstream (Blended Learning Researcher and Writer, 2016).

However, blended learning provides the best of both worlds, and makes it more convenient to the existing mainstream, as it is a hybrid. While on the long term he and his colleague researchers see more radical forms of education getting introduced into the mainstream, they believe it is blended learning that is really "taking off" on the short term. According to his estimates, hybrid models are in the 'early majority' or even in the

'late majority' in the United States, while radical models are in the 'early adopter' phase (Blended Learning Researcher and Writer, 2016). From a pedagogical standpoint, an expert, who is an experienced teacher besides being a successful education leader, argues that blended learning opens a myriad of opportunities for children. She cited a personal experience from her old blended learning school where students "who [had] very weak English skills did not participate in class or participated very minimally", so this deprived her from having a clear picture of their skills, causing her assessment of their work to be inconclusive, but when they were on the computer, they [did] amazing things." (Former Director of Innovation in a network of U.S. public schools, 2016).

Experts shared the conviction that technology is not the most essential component of a successful education policy, or a learning experience for that matter. When asked about whether technology comes first, one expert that "technology does not even come second in priority", and that it fits yet not essential. For the experts, technology does not innately solve the problem (University Professor & Digital Pedagogy Columnist, 2016).

Blended learning can still be utilized for the wrong reasons, as per our experts. One of them shared their concerns as an institution that a lot of schools are "just adopting blended learning to reduce costs", by having students work in the lab and hiring half as many teachers as they would in a traditional setup. He deduces that if the only motivation is to reduce costs, they do not see blended learning "improving quality at all" (Blended Learning Researcher and Writer, 2016). Looking at blended learning from a very limited angle can lead to using it for the wrong reasons, an expert argues; proponents can look at it in terms of "showing kids videos or [having] simple interaction with them". She maintains that interaction is so much more important than a linear one-way channel, as it can motivate students and lead to higher learning outcomes. (University Professor & Digital Pedagogy Columnist, 2016).

This opinion is supported by evidence from qualitative research done with students in the United States on the aspects that lead to their satisfaction from blended learning. The study showed that well-designed interaction, especially learner-content interaction, is the number one reason students become satisfied with their blended

learning experience (Yu-Chun Kuo et al, 2014). Another expert follows the same idea, building on her own personal experience where she witnessed many schools "making the mistake of focusing on the hardware and software (Former Director of a Blended Learning School, 2016).

The Right Reasons

Under the assumption that blended learning is used for the right reasons, there are still prerequisites to implementing it with success. Those right reasons vary according to context, but can be summarized to achieve high quality education outcomes first, and doing it a lower cost second (Staker, 2011) Identifying the right pedagogy is vital as well. While blended learning has the ability to "differentiate instruction and make it more personal to students", make them aware of their interests, strengths and weaknesses, and hold them accountable for their decisions, it can still be used to reinforce bad practices. It also needs to tap into intrinsic motivators rather than be imposed, experts agreed. Furthermore, sufficient spending on teacher professional development, creating repositories of information and resources for educators, and teacher hiring are other important prerequisites for education policy success in general and blended learning in specific, because simply inability to use blended learning with the needed skill set, pedagogical relevance and healthy culture is a recipe for its failure; same for the lack of literature to inform educators – teachers and leaders alike – about best practices and other 'do's' and 'don'ts' (Public Education Reformer, 2016; PhD candidate in Education Practices, 2016; University Professor & Digital Pedagogy Columnist, 2016; Blended Learning Professor & Researcher, 2016; Public School Education Technology Specialist, 2016).

Another important success factor according to the experts is holistic thinking. One of them criticizes the "piecemeal changes" where government is not trying to address some of the main problems because it is too risky to address them, such as reconsidering teacher salaries, qualifications, or criteria for building schools, or failing to generate enough evidence for the viability and/or feasibility of a project – usually needing a huge investment of money and effort – before it is deployed. Therefore, she concludes that

blended learning will not work without the right holistic mindset. She mentioned the "E-learning National Center" project that aimed at establishing an e-learning center in every public university in Egypt, citing that "so much was presented in that project"; courses were created, a huge number of instructional designers was hired, and university faculty was encouraged to upload their class material online. She argues that faculty did not cooperate because they felt threatened that they would not be able to sell their textbooks if they are freely accessibly one, which meant that their incomes would get negatively affected. Similar to introducing piecemeal solutions, some introduce cosmetic policy solutions too that look good but neither comprehensive nor results focused (Blended Learning Professor and Researcher, 2016; University Professor & Digital Pedagogy Columnist, 2016).

Teachers' Adoption

Another program was mentioned by one of the study's interviewed teachers, who shared details about the Egyptian education ministry's announcement to introduce technology in education less than two years ago, where it was made obligatory for teachers to prepare lessons using computer software. The teacher shared that teachers in his school had to learn to use some applications like Access to creates files in PDF. However, they printed the lesson plans to show them to their supervisor while doing nothing in class that had to do with education technology" (Education technology specialist in a public school in Fayoum, 2016).

Getting teacher buy-in is another crucial factor in the success of implementing technology in schools, as per an expert who has years of experiences in leading blended learning initiatives inside schools:

> *I didn't make it a clear value proposition around students learning. I think if teachers understand this is in service of something specific that they can't get to on their own. I think it creates greater buy-in, but I also think teachers at least in the United States are bombarded with new initiatives every year. It's just the kind of the way American education has run, and so many teachers take the perspective of "this too shall pass." They don't go deep into the initiative, because they know it is a passing fantasy. Some teachers do, some teachers don't (Former*

Director of Innovation in a Network of U.S. Public Schools, September, 2016).

Teachers resort to stalling the adoption of the new initiative until it loses momentum and something else is announced. They do not go deep into the initiative, because they know it is a "passing fantasy" (Former Director of Innovation in a network of U.S. public schools, 2016). A teacher who used was hired to be the education technology specialist in a public school in Egypt indicated that he had "no job description", and that he ended up managing the computer lab (Educational Technology Specialist in a public school in Fayoum, 2016). This reinforces the notion that teachers' buy-in, empowerment, professional development and communication are key factors in using technology to reduce inequity.

No Size Fits All

Although blended learning proponents advocate for its ability to provide scalable solutions, a researcher warned against coupling scaling with a "one size fits all" approach, as what "work[s] for a person in a particular context is not going to work for another person in another context" (University Professor & Digital Pedagogy Columnist, 2016). She shares an example that asynchronous learning is much more equitable than synchronous learning, because it is more convenient and promotes deeper reflection, while synchronous teaching can cause inequity, because it favors those with good quality, autonomous and/or less costly access to internet as well as those who speak the dominant language in the synchronous experience or are within better time zones (University Professor & Digital Pedagogy Columnist, 2016). Addressing context is imperative for success of blended learning experiences in the opinion of several experts, who raised several questions that mainly address instructional design and pedagogical practice concerns:

- Is the class time being used better because you have fewer students, or is it just being used the same way?
- Is the teacher to work triple? Is she teaching every single day and online? And is she getting paid the same salary to do that?

- Does the teacher know how to use the online medium for teaching and learning?
- How can you deploy blended learning like that across Egypt when many teachers do not have access to that technology? And when a lot of teachers are women and a lot of these women have children and family responsibilities?
- What kind of facilities are you giving teachers and students? An extra iPad or computer to use?
- Who is designing the curriculum? Who is training the teachers to use it? (Comparative Education Policy Researcher, 2016) (University Professor & Digital Pedagogy Columnist, 2016)

Willingness and Readiness

The experts elaborated on the prerequisites for implementing blended learning successfully. One of the most emphasized prerequisites was a mix of institutional willingness and readiness. They argued that there has to be a level of readiness and willingness to want to do it, without the policies or practices being imposed on people. An expert questioned whether there is a real political will to have good quality education with a narrow equity gap (Blended Learning Professor and Researcher, 2016). This idea is confirmed by another participant, who works as an education rights researcher at a prominent social and economic research center in Egypt. She told a story about field research that they did in El Max in Alexandria and Tahseen village in Daqahleya, in which they examined the socioeconomic conditions of the residents of the impoverished town/village. Upon researching the provision and quality of public education there, they found that not only the quality is poor, but that there is lack of serious willingness to provide educational services. That included building a primary-only school in the village, whose children are eligible to attend KG through grade 12 of schooling. In this case, the village residents had to write petitions to the General Authority of Educational Buildings (GAEB) and the Ministry of Education and wait for years until the school was built, only to serve a small portion of the eligible children. She also mentions that the "education law gives unbelievable authority to the Minister". Without good governance that builds a culture of transparency, accountability, and responsibility, she affirms that a success of

blended learning will be difficult, let alone any policy (Education Rights Researcher, 2016).

A U.S. based expert warned against initiating blended learning projects without the existence of willingness at all organizational levels, because it takes significant amounts of money and time to persuade people, which could be draining to both resources and the momentum for project success (Former Director of Innovation in a network of U.S. public schools, 2016). Readiness, on the other hand, is a key factor as well, as confirmed by the participants of the study. A teacher of a low-cost private school indicated that "[their] computer lab was empty, none of the computers were used, and the Superintendent did not allow [them] to use the computer lab". When she talked to the Principal about teaching using online educational videos and he liked the idea, he only approved using one computer in the computer lab (Semi-private Math Teacher, 2016).

Willingness and readiness come in the mix upon making choices on distribution of land. According to one expert who is vested in Egyptian education laws and right to education research, the government was able to lease 200 pieces of land to build schools in 2016, and she wondered where this land was before while the need for building more schools persisted through the years (Education Rights Researcher, 2016). Readiness and willingness are two different things, as often schools want to do something but do not have the capacity to successfully do it, in the year they want do it. This can take place because the institution has a problem of leadership, budgetary issues, a teacher turnover problem, or an infrastructure problem. (Former Director of Innovation in a network of U.S. public schools, 2016; Blended Learning Researcher and Writer, 2016). Interviewed teachers of public school students shared several anecdotes of readiness issues, including having to run blended learning classes for 45 students with only 10 functioning computers (Education Technology Specialist, 2016), having to bring their own laptops to school and show downloaded videos to their students from the screen because they could not download the videos on campus or show them on a projector (Semi-private Math Teacher, 2016), and having a 2 megabyte internet speed at school but only 4 megabytes for download with a limited share for each teacher. When this share was finished, the

teacher was not able to download anything for the rest of the month". Furthermore, one indicated that most of the students did not have "the means to access the internet", "the ability to research things on it", and/or "a computer to start with" (Education Technology Specialist, 2016).

Experts also warned against policies that constrain innovation. One of them mentioned that if a policy, for instance, sets the number of hours of instruction inside the class then that pushes innovation away from the direction of improving learning outcomes. Similarly, wrong management practices can lead to failure, such as piloting blended learning for the sake of piloting, without a clear and specific set of questions that guide the pilot (Former Director of Innovation in a network of U.S. public schools, 2016). Also, lack of sustained vision can cause problems. An expert claimed that every education minister that comes on board in the Egyptian cabinet usually tries to change things dramatically without a long-term vision (Blended Learning Professor and Researcher, 20016). Managing change is also another challenge for those who want to implement blended learning in schools, as per the experts. An expert mentioned that the ability of the leader to guide and support teachers through the enormous change is critical for success. Teachers need an enormous amount of support around the technology to be able to use it, have it work, and believe in it. Going through stressful situations where technology fails a teacher make them less likely to engage again with technology. Shedding more light on support, the expert emphasized that it is not only training and then teachers are left alone. One of their interventions was to create Blending Learning Teaching Assistance position because she figured out that follow up was critical for success. (Former Director of Innovation in a network of U.S. public schools, 2016) To garner support and buy-in, a number of methods and practices were recommended by the study experts. This included showing a school other successful examples, waiting for the right year of implementation when willingness and readiness are there, harnessing energy towards a common vision, the existence of an impetus to do things differently, or using the biggest pain points of stakeholders and using technology to address them (Former Director of Innovation in a network of U.S. public schools, 2016).

Pedagogical Development

Interviewed experts highlighted that sound pedagogy is essential for success. One seasoned education expert mentioned that – in the experience of the community schools that she experienced firsthand – pedagogical development was "very iterative". It started in a training workshop in 1993, was highly participatory and research-driven, and included a number of invited national and external experts. To tackle curriculum issues, the leaders of the community schools program "barged in and pushed through" with the national curriculum. They introduced new practices such as mixed age schooling and "deconstructed national curricula then constructed them to be pedagogically sound". Simpler but equally essential pedagogical issues had to be changed as well, such as preventing the beating of children or requiring them to sit through 45 minutes of lessons without movement (Semi-private Math Teacher, 2016). In addition to curriculum design, delivery methods and classroom management, assessment poses as a huge area of focus. Interviewed teachers and researchers advocated for changing the way students are assessed, as depending on testing alone forces students to memorize only (Education technology specialist, 2016; Semi-private Math Teacher, 2016; Blended Learning Professor and Researcher, 2016).

Amongst the pedagogical issues is over reliance on computers in learning. An expert quoted Seymour Papert, a mathematician computer scientist who was interested in the relationships between learning and computers, talking about the importance of "not letting the machine program the child, [and] letting the child program the machine" (Papert, 1993). The expert was critical of a lot of educational technology solutions such as adaptive software, where the machine gives the child a limited number of choices and takes them through that rather than the child deciding what they want to do. She argues for giving the students a lot of agency over their learning, and against the discourses behind those adaptive software programs that take sort of a "deficit model" looking at the student as if there is something wrong with them that needs to be fixed rather than focusing on designing the best pedagogy for them, in a way that promotes a more consumerist type of learning. Moreover, a simple teaching method such as giving

homework can impose injustice and give privilege to some students over others, just because not all students have the same access to computers or simply a quiet and productive environment at home (University Professor & Digital Pedagogy Columnist, 2016).

If a teacher decides to flip the classroom, in which "events that have traditionally taken place inside the classroom now take place outside the classroom and vice versa" (Lage & Platt, 2000), meaning that they design the learning experience so that the students learn their content at home and their projects (i.e. homework) in class, that might also lead to inequity by design according to the same expert. She mentions that it is common in Egypt that parents allow the boys more time on the computer than the girls, which means that boys will always have privilege over girls in terms of their ability to learn at home. Understanding cultural traditions, customs and habits is really important too for blended learning successful implementation (University Professor & Digital Pedagogy Columnist, 2016).

The Advisor for the Education Minister of a developing country gave a number of policy solutions she has proposed for reducing inequity in public education. That includes creating a program for private companies to be involved in public schools, such as the Charter school model. She believes that "the only way to improve [equity] is through Public Private Partnerships". For her, it is the only way to improve public education because the government budgets are stretched in the third world". She also advocates for better government regulations for private schools, as intense regulations force people to lose interest in investing, because of the "bureaucracy it entails" (Comparative Education Policy Researcher, 2016)

XII. Conclusion

As seen throughout the study, poor provisioning of public education is both a cause and an effect of inequity in society. Although there are several policy alternatives and programs that can fix the ailments of education in Egypt, it is important to understand the context to be able to prioritize those solutions and programs in a way that achieves the biggest impact with the least resources and without rupturing the societal fabric. The

study concludes that implementing a successful blended learning policy entails addressing a number of more pressing issues first. It is believed that any attempts to fix Egypt's education will be curtailed by poor governance on both the national (centralized) and grassroots levels. Adopting a blended learning policy can help, but it is an instrument that is more focused on form than function.

After examining the Egyptian constitution, education law, Egyptian Ministry of Education's National Strategic Plan for public education and different policy publications and reports, it was clear that an emphasis in equity has been prevalent in terms of narrative. The real gap exists in implementation, as the experts and secondary research show several pockets of inequity across the educational system on different levels, be it geographical, sectoral or socioeconomic. Even though defining equity is a complex matter, most of the consulted/cited literature and the experts agreed that equity in Egypt's public education is really poor.

Going through the literature on blended learning and how it integrates and/or influences education policy in general or the area of equity in specific, it is safe to say that there are no dominant literature trends on the subject. However, there are two main views on the topic of using technology to achieve better and more equity in K-12 education, which can be regarded and categorized as growing trends. The first trend supports the role of technology and sees it as a strong and viable alternative for current traditional systems that have failed to provide high quality education. The second trend embraces a more skeptical view, where it sees technology as a double-edged sword, which can either do well or harm to the education process, based on how it's envisioned, designed and enabled, and where it can be useful but not sufficient to create the needed educational reform. Both trends were echoed in the interviewed experts' views, as they showed no blind trust in blended learning's ability to curb inequity, or its ability to give more benefit than harm by design. Most of the experts – even those who recommended and adopted blended learning – mentioned a myriad of prerequisites to tackle before adopting it, and several factors to warn against.

The diversity of the study participants gave richness to their definition of and approach to equity in education. Many of them tackled equity as a normative question, not a realist one. While this could be normal since equity is part of the human rights discourse, which is naturally a normative topic, it was still interesting to see the amount of weight given to the moral grounds of the topic – albeit from different angles. Several interviewed experts saw socioeconomic discrepancy as a significant contributor to inequity, with aspects such as poor nutrition, improper sleep, maltreatment, and lack of affordability and accessibility as important causes of inequity in their opinion. This conviction aligns with the literature, in which the international community has produced many formal state-level documents, reports and research studies that share the same opinion.

To highlight who is responsible for equity in education, the interviewed experts emphasized the role of the state – on a national level – and the school to make up for lack of equity. The roles spanned different domains, including setting goals, societal empowerment, availing accurate data, and focusing on the disadvantaged to influence a level-playing field. As they analyze the educational problems in Egypt, experts mentioned socioeconomic discrepancy, poorly designed policies and limiting customs and traditions as the biggest contributors to education inequity in the country. International agreements and reports by UNESCO and other international organizations share the same belief, making the state ultimately responsible for fighting inequity in education.

The experts believe that the inequity problems are bigger than to be solved by blended learning alone. While they believe that blended learning is definitely a potential solution for educational inequity in Egypt, they still believe that it can be a double-edged weapon that can also harm equity improvement efforts or at least maintain the status-quo. Different benefits mentioned by both the experts and the literature include “greater perception of increased understanding” of different topic areas, higher linkages with real life, better differentiated learning for underserved students and those who are in need for remedial education. It is also advocated for as a cost-efficient solution that is suitable for

institutions who want to improve outcomes albeit with limited financial abilities (O'Connor et al, 2011; Christensen Institute, 2012). However, it also poses different risks that are shared by our experts and need to be mitigated before fully adopting it as a policy, such as reinforcing bad practices, one-size-fits-all solutions, or being a cosmetic rather than an effective solution. This opinion aligns with the literature, in which several scholars argued that changing pedagogy is imperative to improving educational outcomes such as equity, and introducing technology will not cause such improvement on its own, but will only amplify the practices that already exist (Clark, 1994; Oblinger & Hawkins, 2006; Warschauer, 2003; 2004). The argument goes further that without real change of pedagogy that results in changing assessment methods, curricula and replace rote learning as the foundation of teaching, educators will not be motivated to adopt technology to empower learning, nor will it be effective to increase learning outcomes (Kozma, 2004). Others even claim that introducing technology has not led to improved outcomes until today, especially on the economic front by making students more job-ready or competitive in the market (Youssef, 2015).

Although the profiles of the interviewees were diverse, ranging from policy makers, researchers, academics to entrepreneurs and teachers, their answers entailed a great deal of consistency in three areas: 1. Their perception towards equity and quality of education in Egypt 2. Their adopted definition of equity in education, and 3. The belief that blended learning is not the highest priority intervention needed to solve Egypt's education ailments, or any other dysfunctional educational system for that matter. As far as blended learning is concerned – as per most of the participants – it is an instrument that needs to function within an environment that enables it to succeed. To back up their arguments, the interviewees used examples of firsthand encounters with similar policies and programs that had potential to improve educational outcomes but ended up failing. They also referred to their own personal experiences within classrooms, schools and government institutions responsible for education. Moreover, the mentioned successful projects and best practices where the needed and sought after environments were present, leading to successful implementation of blended learning or other change-driven policies and/or programs. Henceforth, the study concludes that for blended learning to succeed,

education policy makers need to focus first on solving more pressing and profound issues, namely governance, pedagogy, and budget allocations.

A. Research Limitations

Finding enough and relevant literature on the subject was a significant challenge for a variety of reasons: Firstly, blended learning was largely adopted in Higher Education, and K-12 institutions (and consequently literature) followed trail later. This remarkably minimizes the number of practices under study, due to the huge difference in nature between K-12 and Higher Education, which require different needs, manage different stakeholders, and provide different value propositions. Secondly, most of the literature found was focused on the United States institutions, where blended learning is a rising trend in K-12. For instance, two particular scholars, by the name of Michael Horn and Heather Staker, have been focusing their research on the topic for years now, and their work has been an important part of the literature review in this study. However, their research is mostly limited to the United States. Thirdly, most of the research on blended learning tackles it on a subject level (i.e. teacher, student, administrator, leader, etc.), micro-level (i.e. classroom) or meso-level (i.e. institution). There was almost nothing in the research that provides a macro level view of what blended learning can bring to the face of education. This applies even to the literature whose specific focus is on the US. Therefore, the limitations of the research provide stronger ground for why this research is needed, as it is still a "green field" that needs to be tackled from different angles.

A similar challenge was faced upon creating the list of experts for the qualitative aspect of the research, as most international experts were from different parts of the U.S. (albeit with government, for-profit and not-for-profit experiences). While there were attempts to reach out for experts from countries with closer socioeconomic contexts to Egypt's, it was not possible due to the lack of direct contacts or the inability of experts to communicate in English.

Moreover, access to quantifiable data on equity of public school education in Egypt was also really challenging, whether through the Ministry of Education's

communication channels or the web. For instance, the website of the Ministry of Education did not have the current or previous strategic plans of the ministry, although it was included before. What the Ministry's website has today is a link to the vision of Egypt for the year 2030, which - despite tackling education - hardly discusses any strategic aspects, such as long term plans, programs, operational strategy, financial strategy, human resources strategy, and so forth. What it has is an analysis of the education system today and some goals that should be achieved. Beyond the official channels of the Ministry of Education and Egyptian government, a PowerPoint presentation was found on the UNESCO website that explains the strategic plan of the Ministry of Education, but it was dated back to 2006 and had no indication whether it is still in use. Also, having access to officials from the Ministry of Education was a difficult task, despite the presence of direct personal contacts, and the reassurance that the research will be done based on anonymity.

It is also important to note that the author was directly involved with two organizations mentioned in the thesis, which are Tahrir Academy and Mavericks Schools. They were listed for reference to blended learning initiatives in Egypt as part of the background on the topic. Also, no leverage was used to involve any interviewee in the research, as the author was no longer part of Tahrir Academy during the time of the research. One member of Mavericks Schools was interviewed but in another capacity as a scholar.

B. Recommendations

There are several further areas of research that can add to the findings of this study. That includes tackling the equity challenges mentioned in the thesis more elaborately, such as culture issues, socioeconomic disparities, demographic and geographic challenges. Also, more research on the actual efforts done by the government to use technology in education can be beneficial, to further understand the connection between narrative and reality. Lastly, examining blended learning and its connection to equity in third world countries with similar context to that of Egypt is needed to provide solutions based on more relevant insights and personal experiences of experts.

The prerequisite for a blended learning policy to succeed and – more importantly – for the equity gap to lessen, is a governance overhaul. This can be followed or accompanied with other programs aiming at empowering educators; the most important resource of all in a successful education system, and leverage resources from government, private sector and civil society.

Another important track is to ensure the willingness of state and non-state actors and institutions that improving equity is a priority; something that has to be reflected in both narrative and practice.

If willingness is achieved, then readiness comes next. Having the proper environment and ecosystem is pivotal for equity to improve and for blended learning to succeed in improving it. This requires profound structural changes to the system. For example, changing the organizational structure of the Ministry of Education and the different institutions in charge of education is needed to fight the prevalent corruption and inefficiency (Sobhy, 2012; 2014). Also, if university assessment exams replace national standardized testing, this will naturally decrease the need for private tutoring which causes a huge equity issue (Elzayat, 2010). Another recommendation is to create autonomous structures that design and plan policies in a more comprehensive independent manner is needed (Stark, 2011).

It is also imperative for the policy makers to bear in mind that creating culturally relevant solutions that respect local contexts is really important for policy success, as one-size-fits-all solutions will give a further advantage to those who are already privileged by the system. That applies to pedagogical development, budgetary decisions and decentralization efforts that are needed to allow more freedom and empowerment to local efforts that has better insight into the issues on the ground and their possible solutions.

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