

New Generation Schools in Cambodia: The Research Record

(An Anthology of Research Articles on
New Generation School Reforms in Cambodia)

Compiled by:
Kampuchea Action to Promote Education



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Disclaimer

The views expressed in this anthology are those of the authors of each research article. These views do not necessarily reflect the views of Kampuchea Action to Promote Education or any affiliated institutions.

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| Cambodia's New Generation School Reforms By Melissa DONAHER and Nyoya WU | https://link.springer.com/chapter/10.1007/978-981-15-2137-9_6 |
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| Evaluating the Effectiveness of Teacher Mentoring: Research Report By Daavid VANNANEN, Maria MONTELLO, SUN Somara, KONG Maneth, & LY Hol | www.kapekh.org/files/report_file/191-en.pdf |
| Educational Reform in Cambodia: A New Generation School Initiative By SAR Sophanak | https://www.academia.edu/79623423/Education_Reform_in_Cambodia_A_New_Generation_School_initiative . |
| The New Generation School Initiative in Cambodia: Revisiting Its Effects on Shadow Education By NHEM Davut | https://journals.sagepub.com/doi/abs/10.1177/14782103221094352?journalCode=pfea |

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PREFACE

The present publication is an anthology of research articles on the impact and effectiveness of the New Generation School Initiative, which is an important educational reform first instituted by the Ministry of Education, Youth, and Sport in 2015-16. Unusually, this reform was implemented as a Public Private Partnership funded by the Royal Cambodian Government but implemented by a development partner called Kampuchea Action to Promote Education, a national civil society organization and the Franks Family Foundation. This implementation strategy has helped the government to bypass inefficient bureaucracies usually associated with international development banks and multi- and bilateral donors. Those contributing the research articles contained in this anthology include researchers both from within Cambodia as well as from among the international research community. The articles represent empirical analyses from international publishers, research journals, free-standing research reports funded by bilateral organizations, and publications that appeared in various research forums affiliated with well-regarded tertiary institutions. This is the first time that such an anthology of articles focused specifically on Cambodia's New Generation School Initiative has ever been compiled and should make interesting reading for those interested in educational reform.

KAPE'S purpose in compiling this document reflects its desire to demonstrate the stimulative effect on educational reform that the New Generation School Initiative has had on the Cambodian education system. Compiling the Introduction and ten research articles on New Generation Schools in this publication is one important measure of this stimulative effect. Usually, government-funded programs such as New Generation Schools do not attract this much attention among researchers. KAPE feels that the interest generated by the program within the research community is also an important metric of the program's success. Although not without problems and setbacks, the New Generation School Initiative has in general earned positive praise from the research community for its boldness and steadfastness in confronting many of the root causes for the malaise that afflicts much of the public education system. These problems include shadow teaching, inefficient donor and government bureaucracies, poor school management, a test-driven educational culture, and a host of other problems and issues. This record of positive empirical analysis should also hopefully assuage concerns among policy makers and colleagues in the Ministry of Education, Youth, & Sport as well as the Ministry of Economy & Finance that the significant investment made by the government in New Generation Schools has both had a major impact on Cambodia's public education system and earned praise for the Kingdom as a place of educational innovation and creativity.

KAPE also hopes that the constructive critiques of the New Generation School model in the various research articles contained in this document will help government and civil society-based programmers to further improve the model. Indeed, the collective wisdom of researchers brought together in this anthology provides many useful insights on shortcomings in the model (e.g., challenges for replication) and suggestions on how it might be improved. This knowledge should also prove very useful for Cambodia's education system as policy makers consider ways to expand the model beyond the current ten schools that have so far received investment. Thus, the publication of this document is very timely for planned replication of New Generation Schools.

Kurt Bredenberg (Editor)
KAPE Senior Technical Adviser
Phnom Penh - June 2022

CHAPTER 1: Introduction

By Kurt BREDENBERG (Editor)

1.1 What is Special about the New Generation School System?

Between 2016 and 2021, the Royal Cambodian Government and development partners such as Child Fund and the Franks Family Foundation invested about \$10 million in New Generation School (NGS) reforms. These reforms sought to create a new system of autonomous public schools with new freedoms that would promote innovation and high-quality learning that is aligned with the needs of a 21st Century economy. Importantly, participation in the NGS system is conditional on the ability of member schools to meet new governance standards that are strictly enforced by Oversight Boards at both national and provincial level. These standards take the form of a formalized accreditation process that occurs every year to make sure that schools are compliant with strict conditions of governance. The accreditation process focuses not on terminal performance outcomes (such as test scores) but rather on criteria that define the operational conditions needed for successful innovation that in turn promotes educational quality. These conditions include the abolition of shadow teaching practices so that teachers put the highest priority on their public school classes; increased hours of study; unimpeded lab availability, etc. Unlike in many projects, investment is ‘conditional’ on meeting these requirements. As noted above, an independent accreditation process validates that schools meet operational standards.

Although the creation of New Generation Schools is a uniquely Cambodian application, it does have similarities with antecedents in other countries. Perhaps the closest examples in other countries of similar reforms refer to ‘charter schools’ in the United States and ‘academies’ in the United Kingdom. As is the case with charter schools and academies, New Generation Schools are funded by the public purse but operate as independent institutions with accountability to special oversight boards created for the purpose. An important difference between New Generation Schools and their Western counterparts, however, is that the former depends on a Ministry policy framework for their existence while charter schools and academies are legal entities created by local legislative bodies.

The organizational set-up described above highlights the governance-focused philosophy of New Generation School reforms. The essence of this philosophy is that high levels of good governance coupled with dedicated school leadership and independently recruited teachers with high professional standards will lead to improved levels of educational quality. Such reforms assume that each school has its own personality and vision, which means that there is likely to be significant variation in the innovations that occur in each school. Whatever form these innovations take, it is the belief of NGS programmers that they are likely to be successful if supported by the good governance conditions that a New Generation School embodies.

Because the principle of autonomy requires that every school will be different in the way that it approaches educational innovation, the NGS policy framework has sought to distance operational standards implied by the accreditation process from terminal performance standards such as test scores. Too often, linking investment too closely with such terminal outcomes stifles educational innovation and leads to ‘teachers teaching to the test,’ rather than experimenting on new teaching methodologies, facilitating student projects, or organizing other creative activities that often have little to do with test-taking. This approach to promoting educational innovation very much sets New Generation Schools apart from other programs that are often very test-driven.

To be sure, the Cambodian general public does hold schools in the New Generation School System accountable for their performance on tests (particularly the Bac II Examination, which is Cambodia's most important school leaving examination at Grade 12); but in terms of the government assessment of NGS investments, the focus remains steadfastly on the conditions of governance, rather than test scores. The test-driven nature of Cambodia's education system is one of the root causes for low quality learning. The overriding importance of tests drives shadow teaching,¹ unimaginative teaching methods, lack of interest in portfolios and project work, the underutilization of science labs and ICT, and a host of other problems. Indeed, much of what New Generation Schools teach (e.g., coding, robotics, lab work, etc.) is not even on the national examinations. Nevertheless, NGS students generally do well on the national examinations even though they play less of a central role in the overall educational programming of a New Generation School.

A final note on what makes New Generation School Reforms a rather special program in Cambodia's education system relates to the boldness of its vision and roll-out, particularly the use of Public Private Partnership (PPP) mechanisms for implementation.² The creation of the New Generation School System had strong political support from the highest levels of the Ministry of Education, Youth, and Sport even though this initiative challenged many vested interests who have traditionally stymied earlier efforts to reform education. These vested interests refer primarily to the education bureaucracy and the many teachers who engage in lucrative shadow teaching. In this respect, many bureaucrats and teachers prefer to maintain the status quo in the education system in order to maintain both their power and lucrative money-making activities. Thus, New Generation School reforms are not popular in all corners of Cambodian society. Nevertheless, the political leadership in MoEYS placed a higher priority on achieving meaningful reform rather than appeasing powerful political interests who undermine proposed changes.

1.2 The Long-Term View of New Generation Schools

It is commonly thought that New Generation Schools are a timebound project. This could not be further from the truth. New Generation Schools refer to a systemic reform in the education system that has created a parallel system of autonomous schools within the public system that is largely exempt from many of the stifling regulations that often hold back educational innovators. In this respect, New Generation Schools can recruit their own staff, change the curriculum, solicit funds from parents, create and fund new positions in their schools (e.g., school nurse, career counselor, etc.), and many other new freedoms that normal schools do not possess. These freedoms are documented in approved policy guidelines³ that give the whole New Generation School structure considerable staying power that goes far beyond what a timebound project could ever achieve.

It should also be noted that New Generation Schools are not governed by impermanent project configurations like a Project Implementation Unit, but rather have their own administrative

¹ 'Shadow teaching' usually refers to private teaching that is supposed to supplement the regular teaching that goes on in the classroom. In this sense, it is neither negative nor positive. In the Cambodian context, however, shadow teaching has deeply negative connotations because of its pernicious impact on poor children who cannot afford to pay teachers, especially when they ration the curriculum based on students' ability to pay.

² The decision of MoEYS to outsource the implementation of New Generation School development to a civil society organization was a radical departure from how development usually occurs in Cambodia that surprised many observers. Nevertheless, the decision of the government to fund civil society to implement this reform has had many benefits such as bypassing inefficient state and donor bureaucracies, lowering costs by eliminating the practice of 'commissions,' increasing access to innovative practice, and expediting implementation.

³ http://www.moeys.gov.kh/index.php/en/policies-and-strategies/2468.html#.Yn9n_i8Rpy8

structures (see Figure 1) that are intended to be more or less permanent entities unless they are purposely disbanded. As the diagram presented below suggests, the administration of New Generation Schools requires a long-term view and this management structure is intended to provide the on-going reforms with the staying power that they need to accomplish their ultimate goal, which is the creation high quality human resources.

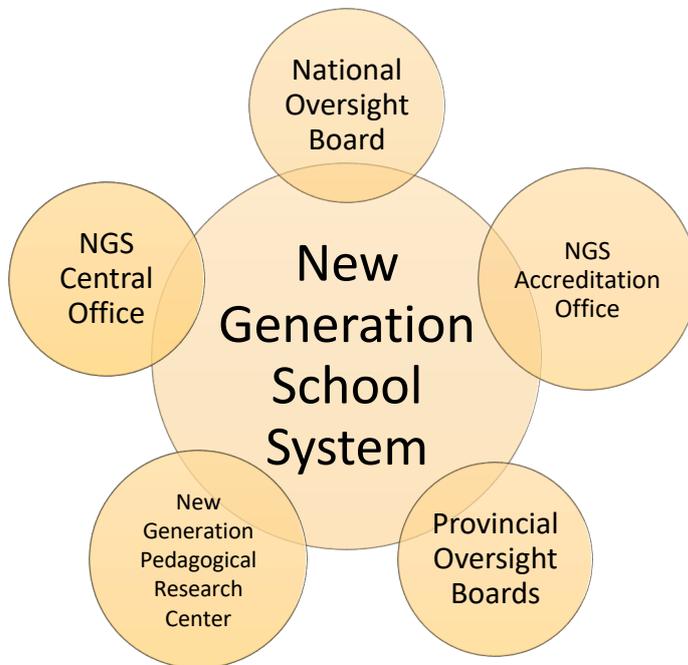


Figure 1: Specific Bodies and Offices Responsible for Administering the New Generation School System. Some of these offices are under direct government control while others have been outsourced to Non-state Actors to expedite implementation.

The long-term view of New Generation Schools Reforms is to create a high-quality human resource base in Cambodia by using a high investment development track in selective locations. This view contradicted the misguided mantra often heard in development circles that if something could not be replicated everywhere, then it should not be implemented anywhere. From the very beginning, MoEYS has been clear that New Generation Schools are not intended to be implemented everywhere, but rather to demonstrate that high-quality public schools are possible in Cambodia’s education system, if certain conditions can be achieved (e.g., the elimination of private classes). Even if Cambodia had the financial resources to set up many more NGS sites, it simply does not have the human resources needed to effectively staff such schools everywhere in the country. This leads to a vicious circle: Cambodia cannot create high quality schools because it lacks human resources and because it has no human resources, it lacks high quality schools. By taking a long-term view of 10 to 20 years, New Generation Schools seek to break this vicious circle by gradually (but steadily) increasing the availability of high-quality human resources to staff high investment schools. At first, this will take the form of a trickle but as more and more New Generation Schools build on the resources that came before them, this trickle will become a stream and eventually a mighty river. This evolution in human resource availability, however, cannot happen in the context of short-term projects with three or four-year time frames, which donors are so fond of; as a result, policy makers have taken a longer term view of decades to achieve this goal by using implementation mechanisms that move beyond conventional project structures.

1.3 Sustaining Educational Quality

Concerns for sustainability were built into the New Generation School design from the very onset. Strategies for sustainable programming build on such things as accountable performance

linked to accreditation, a 3-year investment cycle to achieve accreditation, and a policy framework, which gives the autonomy to schools to negotiate parental financial support in exchange for sustained (and accredited) standards (see Box 1). The linkages between these elements of the NGS system are depicted in Figure 2 below. As this diagram demonstrates, once a school is accredited, it can solicit significant amounts of voluntary parental support to keep operations running even when payments from government might be delayed. Although some degree of government support will always be needed to subsidize the needs of poorer students who can not pay voluntary tuition fees, it is expected that most New Generation Schools will be able to cover between 50% to 70% or more of running costs from local sources. So far, the pilot stage of NGS emplacement has been able to make good on these arrangements with all or nearly all of supported schools achieving fund raising goals in their local communities. Indeed, eight accredited schools reported raising almost \$1 million USD in 2022.⁴

Box 1: Summary of Sustainability Elements in NGS Programming

1. Three-year investment cycle to convince parents of high standards
2. Validating standards for parents through Annual Accreditation.
3. Incentivizing schools to strive for Accreditation because it is linked to their right to negotiate parental support
4. Policy guidelines empower schools to negotiate Parental Financial support once they have demonstrated accreditation. This provides the legal framework for sustained local support.
5. Training School-based Mentors through a Master’s Degree Program that has been established at the National Institute of Education. Such mentors will eliminate the need for reliance on KAPE technical personnel.

Internal discussions within the NGS System and with schools have led to broad agreement that schools should try to aim to be 70% self-sufficient financially (or more) by the time that they start to de-link from MoEYS-mediated support at the end of a three-investment cycle (pending their accreditation).

Although it is recognized that not all schools (and particularly rural schools) may be able to achieve this degree of self-sufficiency, this should be the ideal aim.

While schools in rural areas may not be able to achieve 70% self-sufficiency, they should certainly be able to achieve 50% of running costs. The support that cannot be covered by local resources can then be provided by MoEYS, as per the approved policy framework, linked to a Social Equity Fund. Although it sometimes takes many months for the Cambodian Government to process funding requests, it is believed that if schools can self-fund for the first six months of the school year (i.e., mid-July), the remaining funds can arrive in time to get schools to the end of the fiscal year.

In terms of technical sustainability, MoEYS has established a new center at the National Institute of Education to train school-based mentors intensively for one year to support teachers in the New Generation Schools to which they are assigned. This center, known as the *New*

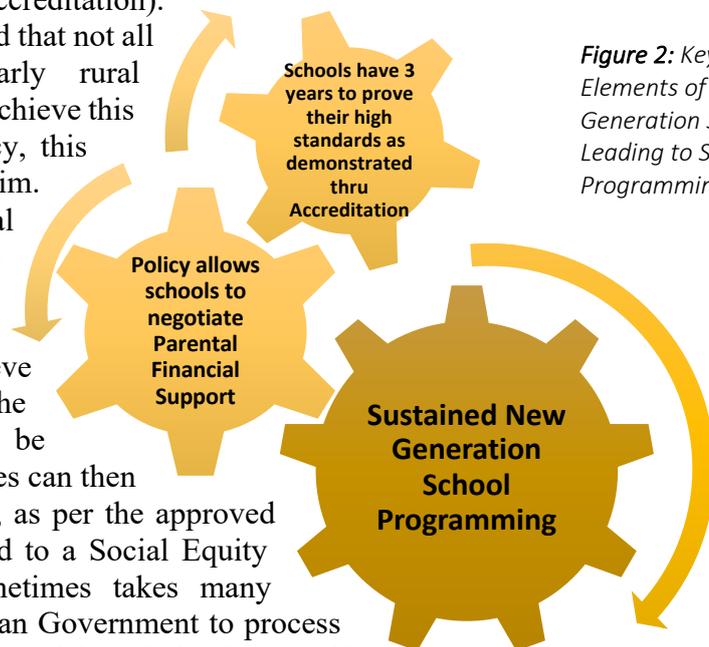


Figure 2: Key Policy Elements of New Generation Schools Leading to Sustained Programming

⁴ MoEYS (2022) *New Generation School Annual Report for Year 6 Implementation*, Phnom Penh: Author.

Generation Pedagogical Research Center (NGPRC) (see Figure 1), confers a Master’s Degree in Mentoring upon its graduates who are then assigned to New Generation Schools where they work as school-based mentors. Basing mentors in schools is a new and innovative strategy introduced under NGS Reforms to strengthen the professionalism of teachers. This strategy seeks to shift the allocation of resources for teacher development away from formalized workshops, the frontline strategy of most donors, towards mentoring and coaching. MoEYS believes that its efforts to use the *New Generation Pedagogical Research Center* as a source of high-quality human capital to support teacher development will help to shift the need for external technical support to school-based Mentors, thereby reducing the reliance on the NGS Central Office for technical personnel. As of 2021, about 54 mentors had been posted for this purpose. Additional intakes of prospective Mentors should ensure that each New Generation School has between three and four school-based mentors who are all certified with a Master’s Degree in Mentoring. The establishment of the NGPRC is, therefore, another key piece of MoEYS’ planning to ensure sustained technical programming after a three-year investment cycle.

1.4 Replicating New Generation Schools and an Implicit Paradox

By the end of 2022, MoEYS expects that all ten New Generation Schools supported during the pilot phase of implementation will be both accredited and sustained by local funding, thereby setting the stage for replication in more locations. Ultimately, MoEYS would like to see at least one or two New Generation Schools in each province and municipality of the Kingdom. At the time of the writing of this publication, MoEYS is planning to establish another 23 New Generation Schools throughout the Kingdom over the next five to six years. This planned replication has required a re-examination of NGS implementation procedures and an attempt to standardize its replication. Herein lies a peculiar paradox of replicating NGS reforms, since the whole concept is based on principles of decentralized decision-making, freedom to innovate, and independence from the general education system. While the NGS System has created a policy framework through which to organize support to autonomous schools including a rigorous accreditation process, it has been careful to leave what goes on at school level to local level stakeholders, mainly school managers, teachers, students, and community members. The philosophy adopted by the NGS System in this respect can best be described as ‘freedom in structure.’ That is, while New Generation Schools do work within a policy structure that has been carefully crafted to provide general guidelines⁵ for operation, it has been careful not to rigidly prescribe the content of activities at school level. Thus, schools determine their own priorities for the resources at their disposal. This means that there is not really a standardized implementation formula for NGS replication.

As the Cambodian Government prepares to involve larger donors and in particular the international development banks in the proposed expansion of NGS Reforms, there is a relentless push to standardize and centralize implementation procedures, as large bureaucracies are frequently prone to do. The efforts of large donor bureaucracies to centralize the implementation of what are essentially decentralized educational reforms present a curious paradox for NGS practitioners. While there are some standard practices that can be observed to guide NGS replication such as careful school selection, certain ratios for the emplacement of labs per classes,⁶ guidelines for lab, library, and classroom configurations, and staffing arrangements, much of what goes on during the process of NGS emplacement is largely an organic process that follows the dynamic decision-making of local stakeholders. Such organic

⁵ Cf. New Generation School Operational Guidelines (2016).

⁶ For example, NGS planners have determined that there needs to be one science lab for every 4 classes and one ICT lab for every 9 classes.

processes do not lend themselves well to replication by giant donor bureaucracies with rigid systems of procurement and technical support. Thus, the paradox of ‘centralized decentralization’ is likely to be one of the largest challenges facing the Cambodian Government to replicate NGS reforms. This suggests the need to consider the continued use of current arrangements for implementation that outsource resources to smaller organizational entities that can create the conditions for organic development.

1.5 What Aspects of New Generation School Reforms Stand Out to Researchers?

Based on the above introduction to New Generation School Reforms, readers should be able to zero in on those specific aspects of reform programming that most interests them. For this purpose, we hope that we have brought together a diverse set of research papers, each with a unique focus. For example, Chapter 2 focuses heavily on how NGS has brought about changes in school governance by using the principle of school autonomy. Once again, the author explores the linkages between autonomy and school performance as well as the role of Oversight Boards in making these linkages work.

Chapters 3, 4, and 5 focus heavily on educational quality issues such as classroom design, STEM Education, infrastructure, and the role of technology in teaching and learning, among others. These articles highlight the perceived impacts of NGS Reforms in these areas and their potential to help Cambodia align with the Fourth Industrial Revolution and on-going changes in the 21st Century global economy.

Chapters 6 and 7, on the other hand, focus on NGS Reforms from a Macro Policy perspective, giving some historical context to the reforms and how they may act as a game changer for efforts to improve Cambodian education. These analyses help to put NGS Reforms in a broader systemic context where readers can better understand what problems and issues policy makers were responding to when they came up with the idea of establishing autonomous public schools.

Chapters 8 and 9 examine the aims and goals of New Generation Schools and how various aspects of the reforms link with other MoEYS policy initiatives such as STEM Education, ICT in Education, and other policy initiatives.

Chapter 10 provides one of the first empirical analyses of the effectiveness of school-based mentoring across the New Generation School System. As noted earlier, shifting resources for teacher development away from formal workshops (which appear to have had little impact on teachers’ professional standards) towards coaching and mentoring is a highly controversial strategy. This article examines the feasibility of the strategy and the challenges that it raises along with important recommendations for how the NGS System can improve the effectiveness of a school-based mentoring strategy.

Finally, Chapter 11 reviews the effects of New Generation Schools on the practice of Shadow Teaching, which has been highlighted as one of the biggest obstacles to achieving educational reform in Cambodia. From the very beginning, NGS programmers realized that if they did not root this practice out, planned investments in Cambodian schools would never work. As noted earlier, Shadow Teaching in Cambodia has manifested itself as pernicious practice that hurts the poor, weakens the professionalism of teachers, and undermines investments in teacher education, infrastructure, and equipment.

CHAPTER 2

New Generation Schools in Cambodia: Innovative School Governance for Sustainable Quality of 21st Century Learning and Instruction

By BO Chankoulika

Reprinted from *Atlantic Press*

Abstract—Cambodian education is facing the requirements in the new context of industrial revolution 4.0 and 5.0 that require substantial and comprehensive renovation. Teaching and learning requires a strong transformation to embrace this new technological advancement. The New Generation Schools (NGS) reform launched in 2015 is used as a new school governance framework to promote the quality and the relevance of education to equip Cambodian youth with skills in industrial revolution era. As stated in Policy Guidelines for New Generation Schools for Basic Education in Cambodia, the establishment of NGS is based on the vision that ‘New Generation Schools will lead to the emergence of a new administrative framework that ensures the necessary conditions needed for successful educational investment’. The Goal of NGS is to create a new development track within the public education system that will lead to the creation of autonomous public schools, which receive high investment linked to new standards of accountability and governance as well as professional standards for 21st Century learning. This paper analyses the innovative governance features of the NGS focusing on the school autonomy for quality of learning and teaching practices. First, we will discuss the school autonomy in global context. Secondly, we discuss the design of NGS under the school autonomy model. Then, we construct the features of school

autonomy in NGS. Finally, we identify lessons learned from NGS which can be leveraged in non-NGS schools in term of innovative good governance.

Keywords—*new generation schools, school autonomy, innovations, school governance*

2.1 INTRODUCTION

Cambodian education is facing to the requirements in the new context of industrial revolution 4.0 and 5.0 that require substantial and comprehensive renovation. Teaching and learning requires a strong transformation to embrace this new technological advancement. The New Generation Schools (NGS) reform launched in 2015 is used as a new school governance framework to promote the quality and the relevance of education to equip Cambodian youth with skills in industrial revolution era. As stated in Policy Guidelines for New Generation Schools for Basic Education in Cambodia, the establishment of NGS is based on the vision that ‘New Generation Schools will lead to the emergence of a new administrative framework that ensures the necessary conditions needed for successful educational investment’. The Goal of NGS is to ‘create a new development track within the public education system that will lead to the creation of autonomous public schools, which receive high investment linked to new standards of accountability and governance as well as professional standards for 21st

Century learning' [1]. By 2017, NGS officially operates at nine school sites in four municipalities/provinces including Phnom Penh, Kampong Cham, Kandal and Kampong Speu. The MoEYS plans to expand NGS to at least two provinces and to 100 schools by 2022 [2].

This paper analyses the innovative governance features of the NGS focusing on the school autonomy for quality of learning and teaching practices. First, we will discuss the school autonomy in global context. Secondly, we discuss the design of NGS under the school autonomy model. Then, we construct the features of school autonomy in NGS. Finally, we identify lessons learned from NGS which can be leveraged in non-NGS schools in terms of innovative good governance.

A. School Autonomy as Innovative School Governance

The school autonomy model has become a popular paradigm of school governance reform in various countries in the world. This model entails the revisit of the school governance toward the self-regulated school with clear functions and right between the central administration and the school. The school autonomy which teachers and school directors are at core will promote the activeness, initiatives, social responsibility and transparency of public schools. The autonomous schools are fully entitled to develop their basic goals and policies of teaching and learning, stimulate the development of appropriate teaching and learning program, invest in facilities and manage teacher to conduct teaching and learning.

Whatever the feature of school autonomy, there are at least three features (1) the right of a school to run and manage its own activities without the external control, (2) the freedom to decide about how the school is organized and functioned including the school vision, mission goals and directions and (3) the right to decide on

the means to achieve the goals determined by the national education policy. School autonomy concept has been incorporated in school based management models (SBM) discursively permeated in policies and practices in many countries around the global. In US, UK, Australia and Canada, charter schools or independent schools are created to denote SBM [3,4]. In South-East Asia, innovative schools are created in Malaysia and semi-independent schools in Singapore [3,4]. Many research findings have shown that SBM increases participation in decision making which improves student learning outcomes [5,6] and promote innovative approaches of learning and teaching. OECD studies [7] proved that school governance with high autonomy and capacity promote high performance. The good governance and accountability of the school will improve the quality of education [8].

B. Evolution of School Autonomy in Cambodia

The initiatives of enhancing school autonomy in Cambodian public education system are not new. Since 2001, the Education Sector Plan (ESP) since 2001 has permeated the delegation of autonomy to schools in terms of shared responsibility, participation and cooperation of the state and relevant stakeholders through the decentralization and deconcentration in education and school based management (ESP 2001-2023). To actualize school-based management, MoEYS introduced the Local School Support Committee (LSSC) in 1994 and the Priority Action Program (PAP) in 2000. The PAP has been applied throughout the country to promote decentralization of educational management services, through district-based and institution-based budget management centers, and reduce the cost burden on the poorest families. In addition, the MoEYS established school clusters in primary school for mobilizing local resources, and community involvement; a cluster is a group of schools

within an area forming to provide a mutual support network based on guidelines established by the MoEYS. Moreover, the Local School Support Committee (LSSC) are formed; its members include school director as chairperson, local authority (i.e., village chief/commune chief) vice chairperson consisting of school principal, local authority, teacher representative, community representative, parent representative and student representative.

Supported by Global Education Project (GPE), the MoEYS developed the SBM implementation plan 2019-2023 which is mainly focused on providing capacity building for 3,642 primary school principals and follow-up supports to 2,572 schools. This is a massive program to train school directors on the core elements of school-based management, including planning, budgeting and financial management.

Recently, the MoEYS has piloted the SBM in a more comprehensive way than the previous SBM at secondary schools under the Secondary Education Improving Project (SEIP). So the previous school based programs are not obsolete but co-exist with the new piloting program. 100 schools have been selected to implement the SBM with technical and financial supports from the World Bank and the central MoEYS support teams. The MoEYS plans to scale up this SBM model in the next five years.

These initiatives have been undertaken in responding to the long standing criticisms on the weakness of public education system that Cambodian school system is not able to produce full potential learners with relevant knowledge and high thinking skills defined in Bloom Taxonomy as well as behavioral values and human characters to meet the needs of the new trends of internet-driven society in the 21st century [9-11]. World Bank presented its report “Growing Smarter” that Cambodia rural children have to attend ill-equipped schools with

underprepared teachers” [9]. School autonomy is likely to improve the quality and relevance of learning and instruction in the 21st century. Without a deep public school reform, the Ministry of Education, Youth and Sport (MoEYS) cannot achieve the vision per permeated in its ESP 2014-2023 that "graduates from all its institutions will meet regional and international standards and will be competitive in the job markets worldwide and act as engines for social and economic development in Cambodia" through its three core policies of equity, quality and life-long learning and effective leadership and management at all levels.

While the attempts for delegation of greater school autonomy are far from new, there is renewed policy commitment of the Ministry of Education, Youth and Sport (MoEYS) to this reform and its capacity to create effective public education system through the creation of New Generation Schools that is expected to improve the quality of learning and spur innovation at school level.

C. Innovative Governance in New Generation Schools

1) School autonomy and accountability: The establishment of NGS demonstrates the long term commitment of the MoEYS to provide greater autonomy to public schools. With the greater autonomy, the MoEYS allows NGS to waive several law, rules and regulations related to the curriculum, school organizations, personnel management, teacher recruitment and firing, teacher professional development that are applied to normal public schools. It is to noted that Cambodian education system is highly centralized. The MoEYS hold power in teacher recruitment, training and deployment, curriculum content, instructional time, teacher salary and resource allocation to schools and with minimal power to schools in terms of teaching methods and learning support activities. With this centralized governance

paradigm, the school and student academic performance are slow.

The NGS are autonomous public schools linked to new standards of accountability and governance and professional standards for 21st century learning [1]. Such schools receive greater autonomy in governance and decision-making with regard to matters of finance, staffing and resourcing to stimulate educational innovation, high educational standards, and strong student academic performance that cannot be generated in normal public schools [1]. To ensure the accountability of the NGS, National Oversight Board created by the MoEYS at national level and Provincial Oversight Board will oversee the implementation of NGS policy and regulations the NGS including the designation and withdrawal of accreditation and the investment [12].

The NGS administrative model allows schools greater control, flexibility and efficiency in the school improvement to respond to the need of local community. Adherent to school autonomy, schools must be accountable for the high performance of teachers and school directors linking to the teacher career pathways and remunerations, and effective use and maintain of high investment facilities. The accountability of NGS challenges the corruption which is one of key problems contributing to low learning performance in Cambodia. Two conventional practices in public schools: private tutoring and mandatory student purchase of teacher goods are abolished in NGS [1,12]. The NGS are more accountable than normal public schools because they have to meet high demand of parents and students and performance management contracts with the Ministry of Economy and Finance that provides annual funding based on the student academic performance.

2) *The right to hire and fire teachers:* The NGS enjoy the right to hire and fire teachers based on its own selection criteria

and process. This authority is not found in normal public schools. The selection and training of NGS teachers are managed by the MoEYS and Kampuchean Action for Primary Education (KAPE) through the New Generation School Training Center (NGSTC). Teachers employed in the NGS are paid more than teachers in other public schools. Although the NGS is provided this key authority, the NGS is still facing the teacher turn over [12]. NGS teachers were on average younger than traditional public school teachers, which makes them more likely to leave the profession or change schools. Teachers in NGS are not permanent, they are mostly temporary transferred from other public school or contracted teachers. They must come back to their original schools after finishing the employment contract. For contracted teachers, they may not stay at NGS long if they could find another opportunity.

3) *The use of Kampuchean Action for Primary Education (KAPE) is institutional innovation:* The NGS creation is linked to Beacon Schools Initiative (BSI) project in Kampong Cham Province implemented by Kampuchean Action for Primary Education (KAPE) in 2011. This BSI project aims to provide practical concepts for improving school governance and cooperation between the public and private sector [2]. KAPE has been engaged by the MoEYS to oversight the process of creation of NGS followed the model of BSI in 2014. The use of nonprofit organization like KAPE is a management innovation of the NGS than is not found in normal public schools. KAPE provides a variety of services covered almost all aspects of the schools such as the initial training of teachers, selection of the competent teachers, day to day management of the school, professional development programs for teachers and school directors, NGS related researches etc.

4) *New strategies of parental engagement:* The NGS involve more parents than other public schools. The rationality

behind this involvement is that NGS parents because they choose to send their child to the NGS through a rigorous selection, will be more involved than traditional public school parents whose child are automatically admitted to the schools. With a greater autonomy, the NGS made the available strong parental involvement policies. This creates institutional trust and confidence from the parents. For instances, what can be seen differently from normal public schools are that parents are invited to school meetings and school visits during starting and closed school academic year. The NGS night shows are very popular and attract the participation of parent in the NGS. In this shows, students demonstrate the innovations, the achievements and credentials.

5) *Innovative role of school director in support teacher*: Teachers and school directors in the NGS collaborate effectively in the school's management. The school directors create the professional development of teachers, determines educational objectives of the school, ensure the practical instruction is used to achieve these objectives, propose amendments to improve teaching practices. The school directors at NGS plays effectively role as instructional leaders that motive teachers to improve the quality of their practices and provide professional learning community (PLC) between teachers. The NGS teachers form groups based on the subject area or grade to collaborate, reflect and exchange ideas on their instructional practices to achieve the students learning goals and their professional growth.

2.2 DISCUSSION

A. *Innovations*

The NGS are well positioned to do something different from what other public schools are doing and develop new idea that help the school to perform in a new way. Their ability to be innovative lies in the regulations that governs the NGS

establishment and operation. Different from other public schools, the NGS are entitled to the school autonomy and accountability under the National Oversight Board chaired by the Minister of Education, Youth and Sport in terms of curriculum and instruction, staff management and development, the involvement of NGO and parents and target population. The school governance toward the school autonomy and accountability, stakeholders' engagement and innovative school directorship are innovative. But the central question remains whether the NGS are innovative in term of quality of learning and the efficiency of learning. In other words, do the innovations spurred by the NGS will change the qualitative and quantitative learning outcomes? and do the amount of time, money and resources are used efficiently to obtain learning result?

As suggested by Peter Serdyukov [13], the purpose of innovation is consistent, which is "to create something different from what have been doing, be it in quality or quantity or both. To produce a considerable, transformative effect, the innovation must be put to work, which requires prompt diffusion and large-scale implementation." He further mentioned that qualitative learning outcomes refer to "better knowledge, important competencies, character development and values..." [13]. The quantitative results refer to "improved learning parameters such as test results, volume of information learned, amount of skills or competencies developed, college enrollment numbers, measured student performance, retention, attrition, graduation rate, number of students in class, cost, and time efficiency" [13]. This conceptual orientation of innovation will be based for analyzing the parameter of innovation in the NGS.

B. *Quality of Learning in the NGS*

The overall results at two NGS schools were excellent comparing to the national average and non-NGS schools in the same

locality. There are currently only two schools with students at the grade 12 level, which is Preah Sisovath High School in Phnom Penh and Hun Sen Kampong Cham High School in Kampong Cham province. Sisovath NGS and Hun Sen Kampong Cham NGS achieved 94% and 84% pass rate respectively comparing with a national pass rate of 68%. Hun Sen Kampong Cham HS. These results show improvement from the results report last year with Sisovath NGS pass rate of 89% and Hun Sen Kampong HS pass rate of 84% [14,15]. 4% of the students at the Hun Sen Kampong HS achieved an A score in comparison to the only 0.4% of students nationally [14,15]. Remarkably, students in the NGS receive the number of medals and awards related to the creativity and 21st century skills. This proves the promised success of school autonomy and accountability of the NGS toward the improvement of quality of education.

However, with the high investment from MoEYS (at least 30% of the school's operation costs) and the parental contribution based on the negotiation between parents and school (for instance: \$ 280 per student in Preah Sisovath High School and \$250,000 in total, \$100 per student in Hun Sen Kampong Cham High School and in total \$66,000), the NGS are costly in comparing to the normal public schools. Therefore, the equity and efficiency of education are at risk.

C. Equity of Education

The market reform and parental and learner's choice principle of the NGS will create the gap between the NGS and normal school and the gap between the privileged learners and less privileged learners. The normal public schools receive annual funding from the MoEYS much less than the NGS. The high investment cost of the NGS will make the large-scale implementation difficult. The high parental contribution cost of the NGS make its hard for the disadvantaged learners to access the NGS

taking into account the low social resources and capacities of the parents.

2.3 CONCLUSION

Cambodia is now preparing its education sector for middle- income country by 2030 and developed country by 2050. Furthermore, Cambodia must prepare itself the challenges of industrial development 4.0 and algorithm and Artificial Intelligent are going to replace human in many forms both at workplaces and in almost aspect of daily life. The development goal and global environment changes will impose many challenges on Cambodia education sector. The New Generation is a promising model of innovative school governance pertaining to school autonomy and NGO's engagement (KAPE) linked to strong accountability to improve the quality of 21st century learning. Although current evidence suggests the reform is well designed to its promised goal of improving the quality of learning of the public school at this time being, further studies needed to be done in terms of level of innovations, cost effectiveness, equity of learning, the 21st competency skill of the student enrolled in the NGS and precise measures of prior student achievement to better explain the accountability measures of the NGS and normal public schools evolved over time.

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CHAPTER 3

Education: Pedagogy & Infrastructure

By KHOUN Theara

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Waking up on a morning in January 2040, Ret Mayuri (English nickname “Yuri”) asks TimeSmart, a low-cost, time management robot, about her schedule for the day. The device tells her there is one science class for her to attend at Sisowath School from 10am to 12pm, two self-registered online courses on creative design and material engineering for her to resume, and a pending twelve-week collaborative project for her to work on. Consisting of a team of five students, the collaborative project on adjustable chair design is in response to a recent student feedback survey showing that some students are having difficulty sitting for long hours in the current school chairs. After school, Yuri searches on the internet for ideas, samples, and videos on adjustable materials and takes relevant online classes recommended by her class facilitator. She then syncs her collaborative works on KhmerKollab, a popular cloud-based platform, and makes an initial presentation using a hologram projector from her home to her teammates. Yuri then successfully produces four different prototypes of adjustable chairs to share with her friends, using a 3D printer available at the Student Lab. Her team then invites 20 students to try out the new chairs during their class. A week later she conducts an online survey with these volunteer students to learn about their experience, using an app on their e-watches. The result shows that only two students found all four prototypes uncomfortable, implying a tenfold decrease of complaints when set against the standard design. At the end of their project, Yuri and her teammates need to write an individual reflective paper in English, including the portfolio of their data, reading materials, and raw files. Her team then uploads their project, prototype, and relevant information to Share9, a popular skill and problem-solving platform, to share their initiative with other netizens.

3.1 Future Education: Pedagogy and Infrastructure: The Ideal Scenario

Education as we know it has evolved. Assessment in 2040 is holistic and individualized, tailored towards the specific interests of the students. Class facilitators normally group students in projects based on their shared interests. Compulsory education covers five broad subjects – Khmer literature, foreign languages (English compulsory, and a secondary elective of Chinese or a Southeast Asian language), math and science, philosophy and ethics, and information and computer technology (ICT), based on various types of holistic student assessments in addition to the collaborative projects which usually takes a student 12 years to complete. However, some gifted students like Yuri can finish much earlier while students with learning difficulty may take a longer time than the average. Upon graduating from her compulsory education, Mayuri plans to undertake her advanced degree in Material Engineering which largely follows the same project-based format but specifically will prepare her to be a material scientist. In this new system, six main systematic reforms are envisioned:

- the integration of digital education and technology into the classroom;
- a model of bilingualism (Khmer and English);
- the adoption of facilitation-based education;
- the feature of project-based, collaborative, and real-world learning;
- integrated sensorial learning; and,
- individualized, holistic evaluations.

The successful implementation of these reforms will support the development of the skilled workforce needed to transform Cambodia's economy from being labor-intensive to knowledge based.

[I] Integration of digital education and technology into classroom

The ideal scenario is that by 2040, Cambodia's Ministry of Education, Youth, and Sports (MoEYS) will have fully integrated digital education platforms and affordable technologies to supplement the traditional education system. For more than 150 years, society has demanded students physically go to school. With disruptive technology and the rise of digital education, this may no longer necessarily be the case in the near future (Thomas Arnett, 2016, in Jukes & Schaaf, 2019). Presently, millennial students often find it more convenient and faster to put their questions into a search engine such as Google than ask their teacher (ibid.). Other online resources have also become increasingly more sophisticated, including, for instance, electronic books, cloud-based learning, learning apps, open online courses, educational games, personalized learning playlists, blended learning, video streaming, and interactive and virtual simulations. In many parts of the world, these resources have rivaled the ability of teachers and traditional curriculums to make learning engaging, fun, and memorable, and are gradually separating education from the physical buildings known as "schools" (Thomas Arnett, 2016 in Jukes & Schaaf, 2019, p.2-3). While the concept of schooling in the physical sense will retain relevance, the availability of personal digital devices and access to a huge amount of digital learning resources will augment the learning system. Such an integration of digital learning with an offline mode of knowledge delivery through affordable technologies is known as "blended learning". This approach has been adopted as best practice in some countries. Singapore, for example, in 2004 introduced the "Teach Less, Learn More" initiative that urges teachers to give priority to the quality of learning, with the incorporation of technology/digital education into the classrooms, rather than quantity of knowledge and memory-based exams (Ketchell, 2014). Studies show this innovative teaching and learning method helps students learn better and become more engaged in the subject compared with traditional modes of instruction (Hockly, 2018). Such systematic integration will allow students like Yuri to learn from anyone, anywhere, at any time, and at any pace to improve their competency in their core subjects, as well as their own personalized subjects and skills while using just a tablet or mobile device.

[II] Bilingualism

The 2040 ideal scenario is that Cambodia's compulsory education will cover four broad subjects: Khmer language, literature, and culture (for identity and sense of belonging), math and science (for their role in all scientific innovations), philosophy and ethics (for responding to skills demands including, for instance, ethics, critical thinking, interpersonal skills, and leadership), and ICT (for efficiency in work and communication). Only Khmer literature and culture will be taught in Khmer, with all the other subjects delivered in English. Bilingualism -- Khmer- and English-based education -- is essential for two main reasons. First, mastering a high level of English proficiency will give students access to a vast body of knowledge. As stated earlier, there are a huge amount of learning materials, including electronic books, apps, multimedia content and digital education platforms, available online across disciplinary subjects, but they are largely in English (Dao, 2018). In the early 2000s, a quarter of the world's population, or 1.5 billion people, were fluent or competent in English, followed by Chinese with 1.1 billion, and the trend is growing (Cristal, 2003, p.12). There is no incentive to translate all these resources into Khmer given Cambodia's small population. The second argument is

that proficiency in English will prepare Cambodian students for the future of work, with seamless integration into the global production network, where English will likely remain the lingua franca for professional communication, thus opening up greater business opportunities.

[III] Facilitation-based education

In many education systems, teachers usually dictate the way they teach and generally avoid extended discussions, making the process a one-way communication (Ketchell, 2014). Evidence suggests that the teacher-centered education system makes students passive and lacking in self-confidence (Emaliana, 2017). In Cambodia in 2040, the concept of the teacher as it is understood today will be obsolete, with educators instead taking on the new role of “class facilitator”. The two main functions of a class facilitator will be to rouse the curiosity of students and to improve their engagement, proactivity, creativity, and ability to absorb new knowledge. First, as the name suggests, a class facilitator is a mentor or facilitator who is willing to invest quality time in guiding students through their learning journeys. They will also take on other roles beyond the learning environment, including supplying pastoral care and emotional support (Bate-man, 2012, p.17). Second, a class facilitator should be an “expert generalist”, not a specialist (Jukes, McCain, & Crockett, 2010, pp.79-88). Coined by Orit Gadiesh, an expert generalist is someone who has the ability and curiosity to draw on diverse knowledge and skills to recognize patterns, “connect the dots,” and manage situations (Roberta, 2018). An educator will be required to have these qualities as they respond to students with diverse interests and talents and capitalize on their strengths and curiosity to unlock their full potential in solving real-world problems. For such an arrangement to be manageable will usually require small class sizes (Emaliana, 2017).

[IV] Project-based, collaborative, real-world learning

By 2040, project-based and collaborative learning will be integral to the Cambodian education system and act as the core assessment of a student’s learning outcomes. Jukes and Schaaf (2019) contend that in the age of “InfoWhelm”, in which information has become increasingly accessible, limitless, and overwhelming, memory-based facts and knowledge can be easily outsourced to electronic devices, and thus students can put greater focus on creation and application through project-based learning rather than the pure retention of factual knowledge. Given the complexity of global problems such as water pollution and poverty, having one specialized discipline will not be enough to tackle them (Jukes & Schaaf, 2019, p. 1). This poses one significant implication for the approach to education in that these complex issues usually require interdisciplinary solutions, whereby they cannot be solved alone but rather require a team effort in which different skill sets and roles are utilized.

[V] Integrated sensorial education

The approach to learning in 2040 will see students optimize the use of their five senses -- vision, hearing, smell, taste, and touch. In this regard, digital education and technology will require a supporting physical environment to operate within. Therefore, other tools will have been integrated into the new learning environment in Cambodia by 2040. These include play-to-learn tools including learning games and playgrounds; exposure to local communities and the natural environment through field trips and site visits; and the availability of the Student Laboratories to undertake collaborative exercises. These sensorial tools combined will enhance students’ learning by incorporating all five senses and translating this new knowledge and wisdom into the creation of applications to solve real-world problems. A recent study shows that this type of active learning helps students learn more and perform better in tests compared

with passive lectures (Deslauriers et al., 2019). Sensorial education has been integral in various education models, particularly the Montessori approach. Developed by Maria Montessori, it is a child-centered educational method based on scientific observations of children that has been widely used for more than 100 years in many parts of the world (American Montessori Society, 2019). Numerous studies have found that when implemented holistically, Montessori students generally outperform students from other types of schools not only in academic skills such as mathematics and science, but also in social skills deemed crucial in later stages of life (Dohrmann et al., 2007; Borman et al., 2003).

[VI] Individualized, holistic evaluations

When it comes to student assessment, age-based education and memory-based testing will be outdated across all levels of Cambodia's education system by 2040. Whether a student should move on to a higher level of education will be based on a variety of sophisticated competency yardsticks. Thus, talented students will be able to graduate earlier than the average student, while students who struggle will spend more time in compulsory education. The school curriculum has been traditionally organized along a one-size-fits-all mentality, operating on the assumption that students learn from the same materials, in the same way, and in the same timeframe. However, in reality, students neither have the same capacity nor do they share the same interests (Stein, 2019; Jukes & Schaaf, 2019). In this sense, curriculum and student assessments will be holistically designed, and tailored towards equipping learners with the skills of the future, both soft and hard. Evaluation tools will also broaden the perspective of the curriculum, allowing students to connect the dots, for example, as to how mathematics is related to music, art, material design, and social science. This will in turn make education more interesting, engaging, and relevant to the real world.

3.2 Scenario Space and Key Factors for Industrialization

Education provision in the future will largely depend on three main factors:

- i. Supply and the substance and way in which education is delivered (teaching pedagogy and curriculum);
- ii. Demand and the structure of the economy, which dictates the skills demanded in the future (future skills);
- iii. Resources through which such an education delivery mode is made possible (education infrastructure and digital technology); and,
- iv. Digital technologies and their widespread adoption across society.

According to the WEF's Human Capital Report 2017, Cambodia scored the lowest in ASEAN in educating and training its citizens into becoming a productive and competitive labor force. Cambodia ranked 92nd out of 130 countries in the human capital development index (WEF, 2017). Similarly, Cambodia ranked 146 among 189 countries in the UNDP's Human Development Index 2019, the lowest in Southeast Asia after Myanmar, whereas Singapore and Sweden remain consistently in the top 10 (UNDP, 2019). In a recent survey of 605 employers in Cambodia across industries, one-third of interviewees reported having encountered a skills gap, including a lack of foreign-language skills, technical skills, and communication skills, as well as collaboration and problem-solving skills (National Employment Agency, 2018). The findings regarding skills demand in Cambodia are generally consistent with global trends (see WEF, 2016; Florida, 2014). This can be seen as partly emanating from the kingdom's dropout rates. At primary level the dropout rate in Cambodia has increased from 7.2% in 2016 to 9.4%

in 2017 (the World Bank, 2018). At lower-secondary school the rate is higher still with a rate of 19.2% in 2014-15 (MoEYS, 2016).

Supply: Teaching pedagogy and curriculum

While as a global trend, facilitation-based, student-centered learning has been embraced by many countries, the mode of delivery in public schools in Cambodia is presently largely one-way, teacher-centered instruction wherein teachers take on two main roles. First, they lead the classroom based on the core curriculum as designated by MoEYS. Second, teachers are generally experts in their subject. For instance, a math teacher is trained only in math, and the same is true of teachers of Khmer literature; however, they may not be expert generalists who have the ability to help students understand the big picture or to connect the dots through facilitation-based learning.

This is, however, practical for two main reasons. First, with the current large class sizes, with an average 44:1 student-teacher ratio (MoEYS, 2017), student-centered learning is, in theory, not feasible (Emaliana, 2017). Second, the large number of low-quality teachers, especially in rural areas, also poses a legitimate constraint on modernizing teaching pedagogy. At slightly more than \$200 a month in 2017, the pay is low, with teachers earning 60% less than other professions that require similar levels of education. Many teachers are forced to take additional, often low-paid, employment to support themselves, resulting in the quality of their teaching being compromised (MoEYS, 2015a; Sokhean, Sineat, & Amaro, 2017). As a consequence of poor remuneration, the profession often fails to attract high-performing students, with most trainee teachers attaining C, D, or E scores in their Grade 12 final exams, while private tutoring is still widespread (Tandon & Fukao, 2015). In the Teacher Policy Action Plan 2015, MoEYS has committed to increasing the salaries and other benefits for teachers based on performance to attract talent. The qualification needed for teaching is being increased to the minimum of a Bachelor's degree, while a fast-track program is being provided for existing teachers (MoEYS, 2015a). With respect to the curriculum, in its recently adopted Curriculum Framework for General Education 2015, MoEYS laid out a new vision in transforming the public school curriculum in response to global trends and changes in workforce demand, moving from memory-based, summative knowledge to higher levels of competencies and skills in application, analysis, and evaluation (MoEYS, 2015b). The curriculum framework is a key document for all stakeholders in developing important documents such as student textbooks, learning aids, guidelines for teaching and learning methods, and indicators of student learning outcomes (ibid.). Three significant changes to the old curriculum framework are the incorporation of international languages (English or French) from Grade 1 to 6 as core subjects, the integration of ICT classes from Grade 4 to 12, and the incorporation of life skills from Grade 4 to 9. Additionally, curriculums will need to be developed around eight core competencies:

1. Literacy and numeracy
2. Foreign languages
3. Information and communications technology (ICT)
4. Communication and teamwork
5. Analysis and creativity
6. Applying knowledge and skills
7. Personal, family, and societal development
8. Entrepreneurship and leadership (MoEYS, 2015b).

However, a recent study by Khieng et al. (2016) found that such curriculum reforms usually get bogged down by under-qualified staff and vested interests. There was a plan, for example, to solve a problem with science textbooks by adapting Oxford University Press books at no additional cost; however, the proposal was shelved in favor of creating a large committee to handle the task. Another example is that of a small, competent team tasked with revising the chemistry curriculum that was quickly expanded to become a large committee of 50 people, many of whom had neither knowledge in chemistry nor of teaching pedagogy (ibid.). These cases illustrate the challenges to be faced when modernizing the school curriculum. In assessing the competency of students, MoEYS has committed to improving the system through regular classroom tests, national examination system reforms, preparing students for international tests such as PISA and Olympiad, and improvements to the school quality assurance system (MoEYS, 2014).

Resources: Education infrastructure and digital technology

In terms of education infrastructure, as a global trend, more digital platforms and technologies have become accessible, with more to become available in the future. Apart from these digital resources, there are a wide array of other disruptive and emerging technologies that have significantly changed the way students learn and will continue to do so. Below are four examples of technologies that will provide pioneering new teaching methods moving forward:

- Holographic, virtual reality (VR), and augmented reality (AR) learning experiences: These technological breakthroughs are a splendid add-on for online and physical learning in that they can give learners an immersive learning experience without the need for travel. Learners can wear VR headgear to immerse themselves in the Milky Way, for example, while medical students can follow complicated operations (Jobanputra, 2018).
- Games: Scenario-based games now have been integrated into various universities in the US and elsewhere as part of the training for nurses and engineers, and in the teaching of history and other subjects (TeachThought, 2015).
- 3D printing: Students can print basic prototypes, structures, and materials as part of the application of training to address real-world problems (TeachThought, 2015).
- Artificial intelligence (AI) integrated software: Such software can be used to improve language proficiency and detect plagiarism. It has even begun to grade students' essays with teacher-like accuracy (Jukes & Schaaf, 2019).

Looking at trends that will likely affect Cambodia, while very few people in Cambodia had a mobile phone in the 1990s given the high price, almost everyone could afford one as of 2016 (MPTC, 2016). Cambodian mobile phone subscription has already reached saturation, with 20.5 million subscribers in a population of only 15 million people (ibid.). As of 2016, internet subscription in the kingdom accounted for 7.16 million people, or approximately half the population, a sevenfold increase from 2011 (ibid.). With the highest internet coverage growth rate in the Asia-Pacific region, the Royal Government of Cambodia (RGC) expects 100% coverage of high-speed and affordable internet in urban areas and 80% in rural areas by 2020 (Xinhua, 2018). This promising trend will provide a feasible foundation for blended and other forms of digital learning through the integration of education technologies/platforms in the classroom.

Taking advantage of these technological advances, MoEYS has piloted two innovative programs, the New Generation Schools (NGS) model and⁷ the E2STEM school as groundwork toward modernizing the Cambodian education system. Operational in 2015, NGSs are autonomous public schools with a mandate to innovate and improve educational quality, especially in the STEM subjects -- science, technology, engineering, and mathematics -- through access to high level of investment (MoEYS, 2016). After a competitive selection process, students in NGSs have access to a modern STEM curriculum, and cutting-edge textbooks and educational technologies, such as electronic lesson plans, science labs, and e-learning. They are also provided life skills education and interactive learning modules, including project work and subject clubs to provide them with the skills needed for the 21st century (MoEYS, 2016).

Demand: Future skills

Regarding future skills demand, this chapter will examine this from both the global and national perspectives. As a global trend, in the 2016 WEF report *The Future of Jobs*, more than one-third of skills (35%) that are considered important in 2020 will be replaceable by advanced robotics, self-driving transportation, AI, and machine learning in the Fourth Industrial Revolution. This requires every- one, including employees, employers, governments, and educators, to be proactive in up-skilling, unlearning, and retraining themselves and others. According to the report, the 10 most fundamental skills necessary in the future will be complex problem solving, critical thinking, creativity, people management, coordination, emotional intelligence, judgment and decision-making, service orientation, the ability to negotiate, and cognitive flexibility (WEF, 2016). In his seminal book *The Rise of the Creative Class*, Florida (2014) examines and classifies the modern workforce of a nation into four groups: agriculture, working, service, and creative. Creative class jobs are those professions that require “headware skills” in addition to hardware skills. Headware skills are abilities such as leadership, critical thinking, problem-solving, adaptability, productivity, accountability, communication, information management, creativity, innovation, global citizen- ship, and collaboration. These are lifelong skills, not short-life ones that traditionally require the memorization of specific content knowledge as practiced in high-stake standardized tests and benchmark exams. Florida (2014) believes that short-life skills will quickly become irrelevant in the age of disruptive innovation and hyper-information.

In Cambodia, though such a global trend has yet to drastically materialize, the share of the labor force in agriculture has continued to shrink steadily from 60% in 2009 to less than 40% in 2017, whereas the share in industry increased from 17% to nearly 30% over the same period (National Institute of Statistics, 2018). The decline of the labor force in agriculture is the result of moves to larger-scale commercial farming and mechanization, as well as diversification to other eco- nomic sectors (ODC, 2015). Meanwhile, although an increase of the labor force in industry is plausible, it is predominantly in low-skilled industries such as manufacturing. In Cambodia, automation in the manufacturing industry will likely see the loss of thousands of jobs to machines in the coming years (Chea, 2019). Potential job losses to automation and machinery in agriculture and labor-intensive industries will be exacerbated by a projected population growth, and especially an aging population.

⁷ Discussed thoroughly in Rath's (2020) chapter in this volume.

3.3 Policy Initiatives to Achieve the Ideal Scenario

To make the best-case scenario a reality, the following action plans are proposed at policy and implementation levels. During the initial phase, it is recommended that MoEYS establishes a governing council whose tasks are to harmonize and address the gap in existing policy frameworks and create action plans moving toward the best-case scenario. Under the council, it is advisable to have six subordinate committees to reform each of the features outlined in the best-case scenario. While they are independent, the committees should work closely and collaboratively under the governing council to design a new, holistic education system. This can be done by revising and capitalizing on the existing NGS policy based on clear, progressive indicators, feasibility studies, cost-benefit analysis, and monitoring and evaluation frameworks. The following proposals may assist the council with the direction of the reform agenda:

Feasibility of extensive digitalization of classroom

- Identify low-cost technology, digital learning tools, personalized learning apps and games, and online materials that can be used as supplementary aids for teachers and students. These resources should then be broken down into different sets for different levels of class. It could be argued that as a developing country, such digital education platforms and technologies are out of Cambodia's reach. However, there is cause for optimism for two reasons. First, most such electronic learning platforms, like Khan Academy, Coursera, and EdX, as well as collaborative platforms such as Google Suite, are generally available free or with low subscription fees. Second, while even technologies such as 3D printing are somewhat expensive for the time being, technological diffusion and transfer should make them affordable in the coming years.
- Provide flexibility for students in bringing their laptops, tablets, smartphones, or other mobile devices into the classroom. This will help public schools and the Cambodian government save day-to-day operational expenses and simultaneously improve students' learning outcomes and productivity as they use their personal devices (Jukes & Schaaf, 2019).

Financial sustainability

- Charge parents a modest school fee. Parents in the low-income threshold should be subsidized or have fees waived. In Cambodia, parents who can tend to send their children to private schools over public schools, perceiving a difference in quality. If public schools were to provide better quality education, a lot of parents would reconsider sending their children to private schools.
- Identify resources at public schools that could be monetized from various revenue sources, including, for example, parking fees, renting out the canteen, or possibly after-school classroom rental for private lessons. The revenues would need to be managed with transparency, accountability, and efficiency so they could be used to improve learning facilities and supplement teachers' basic pay.

Improvement of teaching competency

- Implement a vigorous approach to human resource management, retiring corrupt and unqualified staff through an effective education management system, as well as put an end to "shadow" education, in which educators teach private lessons. The problem with

shadow education is that this often leads teachers to not put much effort into their school lessons so that they can provide private tutoring to their students instead. This is a corrupt and inefficient practice that needs to be addressed.

- Increase basic salary for teachers and provide performance incentives based on a list of indicators, including student assessment and teaching performance, to attract more talent to the teaching profession.
- Put significantly more effort into teacher recruitment. Having competent people on board would in itself greatly reduce weaknesses in education. The role of the new intakes and existing teachers should be framed as “class facilitator”.
- Provide existing teachers and new intakes with intensive training in student-centered, facilitation-based instruction methods, digital education and the related tools, and supplementary English training. With regard incentives, salary supplements and other benefits should be contingent on their competencies in these digital tools, their English proficiency, and their ability to apply the new teaching pedagogy in the classroom.

Feasibility of curriculum and assessment restructuring

- The curriculum and student assessments should be holistically designed and tailored towards equipping learners with the skills of the future, including complex problem solving, critical thinking, creativity, people management, coordination, emotional intelligence, judgment and decision-making, service orientation, negotiation, and cognitive flexibility.
- Reduce the number of compulsory subjects to only five: Khmer literature, English language, mathematics, science, and ethics/philosophy, and increase the variability of elective courses to meet the different interests, needs, and talents of students.
- Adopt the Singaporean model in which English is the medium of instruction. Compulsory classes except Khmer literature should be given in English. Also, high-quality textbooks, such as Oxford Science Textbooks, should be consulted and contextualized into the new curriculum design.
- Integrate project-based learning into the classroom. Using Yuri's scenario, the learning outcomes of each student can be assessed from each collaborative project via a variety of methods: the acquiring of soft skills, such as the ability to work collaboratively as a team and presentation skills; obtaining hard skills, such as the quality of the project's content, and its feasibility and applicability, and evidence-based project outcomes; critical writing (through personal reflection); and general skills (portfolio filing). In this sense, students become more empowered, curious, and passionate throughout the learning process. Emphasizing the collaborative project also suggests that the core subjects in the curriculum should be limited to just those that are the most relevant for real-world applications.
- Incorporate a wide range of activities such as group work, student presentations, prototyping, and project implementation in addition to standardized tests to assess students' competency and their eligibility to graduate to a higher level. Holistic, individualized assessment also means a competency-based education can replace the traditional age-based division. The implication is that students who perform better can progress faster.
- Invest more in learning facilities, especially the learning lab, so that students can better understand the importance of various subjects, how they relate to one another, and how they can be applied in real life.
- Include periodic fieldwork and study trips as part of the curriculum.

Collaboration with non-state actors

- Maintain close and healthy collaborations with all stakeholders, especially local and international EdTech non-governmental organizations and startups, to provide greater efficiency in integrating digital education tools and recruiting qualified teachers. Teach for Cambodia, for example, has recruited numerous potential teaching fellows to teach in rural areas, so this type of setup should continue to be embraced and leveraged.

3.4 Education: Pedagogy and Infrastructure Under the Baseline Scenario: Business as Usual in 2040

The baseline scenario is the business-as-usual trend analysis, taking into account current and future trends collected from available data and resources. As a general trend, the Cambodian government has been committed to improving the quality of education. In 2019, MoEYS received the highest share of total national expenditure at 11.7% (\$915 million), an 11% increase from the year before (MEF, 2018). Along this line, there is also an explicitly high level of political commitment to gradually reforming the education system. In the Rectangular Strategy Phase IV in particular, while education and human resources development stand as the first pillar of the rectangular strategy, the government boldly acknowledges that “the quality of higher education does not meet market demand and regional standards, as well as [there being] limited efficiency in the management and governance of higher education institutions.” (RGC, 2018, p.21). The government estimated that only 42% of students finished Grade 9 in 2016 (PPP, 2018). As discussed in Section 2, failings have been acknowledged, and the determination to address them has been manifested by the adoption of numerous progressive policies in recent years, such as the Policy on Higher Education 2030, Teacher Policy Action Plan, New Generation School Policy, Curriculum Framework for General Education, Policy on Technical Education, and Education Strategic Plan. Following an analysis of these policies and extrapolating major trends, the quality of Cambodia's education will be substantially improved, but it is unlikely to be as competitive as that of Singapore’s and other developed countries as of 2040.

First, there will be a moderate adoption of technology into the classroom setting. MoEYS has been gradually embracing low-cost technology and digital platforms, for instance, by adopting an electronic attendance system, equipping computers and basic electronic devices across public schools, integrating basic ICT classes into the curriculum, and creating online portals such as the Krou website. These portals provide supplementary teaching resources, videos, images, and games for teachers at all levels and disciplines to assist with their offline teaching (KTD, 2019). However, the rate of such adoption and technology diffusion is still relatively slow, especially as regards ICT infrastructure, such as LCD projectors, smart boards, suitable computers, high-speed internet bandwidth, and other low-cost technologies essential for blended learning.

Similarly, there still will not have been any guidelines put in place for students and teachers to adopt blended learning or consult with freely accessible online platforms and digital textbooks, such as Khan Academy and Coursera, to supplement mandatory classes, especially in math, science, and English. In other words, while there are emerging trends regarding education modernization and digitalization, they appear not to have been fully utilized to an optimal efficiency. Therefore, based on this trend, modern education models such as NGS will be difficult to scale up nationwide by 2040 without additional, credible interventions.

Second, the teaching pedagogy will be largely teacher-centered. Based on various policy reviews, especially the General Curriculum Framework 2015, there appears to be no policy or action plan in place to transform teaching pedagogy from teacher-centered to student-centered, and this trend may hold until 2040. As discussed earlier, teacher-centered pedagogy, by design, generally cannot provide students with the soft and hard skills required for the 21st century work-force as effectively as the student-centered approach.

Third, in terms of curriculum development, based on the General Curriculum Framework, Cambodian education in the coming years will continue to be driven by an inflexible, one-size-fits-all curriculum, while there is a slight chance of project-based learning pedagogy to be adopted nationwide. While there are justifications for a rigid curriculum structure, the pitfalls are that it cannot be tailored toward individualized students' interests and talents.

Fourth, as specified in the framework, there is a plan outlined to bring forward the teaching of foreign languages—English and French—into compulsory primary school education, from them currently only being taught from Grades 7 to 12. However, this approach could be dubbed the “soft integration of bilingualism” in that all other subjects, except for languages, are still taught in Khmer. This could result in students facing challenges when doing individualized online learning or engaging in a professional working environment at a later stage if they do not possess strong enough competency in English.

Fifth, with the current rate of investment and as a matter of projection based on the available data and government policies, most public schools will be able to access a moderate use of experiential and sensorial learning tools and infrastructure by 2040. In informal interviews, several high school students said they generally learned STEM subjects such as math, chemistry, and physics by rote, but generally had no idea of the applicability and usefulness of what they had memorized. As a result, they quickly lost interest in STEM, tending to choose social science majors at university instead.

Experiential and sensorial learning through the availability of the required laboratory tools and field trips to communities and the natural environment on a periodic basis would enable students to connect the dots to make sense of the world and help them conceive and devise appropriate ideas and solutions to address the problems facing the modern era.

Sixth, a wide array of standardized, one-size-fits-all tests will still be used as the primary instrument to assess student performance and their suitability to move to a higher grade. There are two major setbacks with standardized testing. First, it operates on the assumption that students learn at the same pace, while this has been proven not to be the case. Instead, as discussed earlier, age-based, standardized testing can demotivate gifted students, with them quickly lose interest and passion. Second, it cannot be used to evaluate the skills needed for the 21st century, such as collaboration skills and leadership, and students' real competencies, for instance, their ability to apply the knowledge gained.

If the baseline trends were to be followed, Cambodia's education system and human capital would be improved to some extent, but they would still lag behind those of neighboring Thailand and Vietnam. As discussed earlier, there are a host of reasons why this would be the case. For example, with a limited use of affordable technologies and digital education, together with Khmer-based instruction, students would continue to struggle with independent learning and access to the world of knowledge. Equally important, with a teacher-led classroom setting

and standardized assessment, students would not be able to master the skills demanded by the 21st century, including critical thinking, leadership, and collaboration.

With many jobs likely to be replaced by machines and AI, it is critical that these essential skills are provided to ensure the smooth integration of the Cambodian labor force into the future of work and to inspire life-long learning. While there are some efforts being undertaken by education startups and non-state actors such as Future Forum, Edemy, Teach for Cambodia, and Liger Leadership Academy to bridge the gap, the reforms needed cannot go far without a holistic revision of the education system.

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CHAPTER 4

Education: Inclusivity, STEM, and Smart Design

By RATH Setha

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It is 8AM on a Monday morning and Mongkol, an 11-year-old boy, is eating his breakfast while listening to a science podcast before heading to school. Mongkol takes a driverless bus to school. It is the start of the new semester, and Mongkol selected his Grade 6 subjects based on his interests. He goes to his history class and uses facial recognition to sign the attendance. During the history class, the instructor shows everyone a hologram of Angkor Wat that has been developed by senior students. Mongkol takes notes on his digital pad. After the lecture, Mongkol gets his tablet and logs into the Learning Management System to work on his history assessment. In the afternoon, Mongkol goes to the canteen to have lunch, which he has already pre-ordered from his phone. After the lunch break, he meets his friend Mony at the special education class for visually im- paired students. Mongkol, Dara and three other classmates are working on a robotics project at the tech and innovation lab where they develop and innovate a personal assistant robot for the elderly. It is almost the end of the day and Mongkol takes the skytrain home via his evening Apsara dance class. After having dinner with his family, Mongkol goes to his study room to review the mate- rials for tomorrow's seminars and watch the recorded lectures from last week as he had missed the classes. On opening his email, he is excited to have received a message from the ASEAN Exchange Program notifying him that he has been selected for an exchange program in Singapore for the next semester.

4.1 Future Education: Inclusivity, STEM, and Smart De- sign: The Ideal Scenario

In 2040 Cambodian education will be a hallmark standard of inclusion. Inclusive education means making basic education accessible to all children regardless of background, race, ethnicity, religion, or disability. The distinction demographically in Cambodia between urban and rural areas, with children in the cities having access to better educational opportunities than those in remote areas (Lay, Lim & Man, 2018), has been eradicated through a combination of distance learning and quality coverage. The promotion of inclusive education ensures that students in remote areas have equal access to quality learning and educators. School facilities have been designed to meet the needs of students with disabilities; including the standardized incorporation of wheelchair ramps, inclusive bathroom facilities, and multi-sensory teaching methods. Underpinning quality, inclusive coverage is the nationwide provision of quality internet connectivity, with all areas covered, enabling even remote schools to have access to EdTech.

A crucial feature of the 2040 vision for education is the structure around STEM subjects (science, technology, engineering, and mathematics). Public schools in both urban and rural areas have developed around the mandate to replicate the new generation schools (NGS) model⁸. NGSs have formed student unions and study clubs, enabling students to learn

⁸ New Generation School (NGS) is an education reform made by the Ministry of Education, Youth and Sports in 2014 that aims to improve the standard and quality of education. NGS has an autonomous model in which the school governing board is accountable for their performance, whereas the recruitment of educators is competitive and focuses on performance-based merit. The NGS also extends the teaching hours to include the special subject themes for students and

specialized subjects such as STEM and organize school activities. With the popular model in place at NGSs and certain private schools, over the next 20 years student unions will become autonomous and well-established, with students feeling empowered to voice their opinions and concerns, as well as to create projects and solutions to serve the learning needs of their peers. The student union, a replication of the model at learning institutions in developed countries, will consist of study clubs, subject-based clubs, and common interest and hobby groups. They will organize student-run social and charity events, and project work. The student union will engage parents and all key stakeholders in its activities.

Early forerunners in the NGS model have been transformed into “smart schools”, with the model implemented nationwide. The Smart school model builds on the NGS model by prioritizing the adoption, incorporation, and promotion of digital learning practices throughout the curriculum. It places a significant emphasis on science, innovation, and entrepreneurship, under a hands-on learning model. Similar to the NGS model, Smart schools will focus on the delivery of high-quality educational services, with qualified and highly motivated educators, STEM education, student-centered learning and innovation labs. Smart schools will have introduced the learning management system to students since Grade 1. The learning management system will allow educators to communicate with students on subject guides, lesson plans, reading materials for each week, and assessments. In addition, the system will introduce the virtual classroom, which will allow students who missed class to watch recorded lectures. The virtual classroom also works for the long-distance learning. Schools, be they NGS or Smart, are interconnected, with students able to visit others in their area to learn about innovative projects and activities. Building on the opportunities of 2020, there is an institutionalized opportunity for students in secondary school to undertake an exchange program to study a semester in neighboring ASEAN countries. The ASEAN Scholarships for Cambodia program awarded by the Ministry of Education in Singapore, gives high school students in the kingdom the opportunity to study at an institution of a regional neighbor.

Educators in 2040 are no longer reliant on tutoring classes to supplement their income. In addition to a secured and competitive salary, they are incentivized through personal and professional development training programs undertaken in exchanges within the ASEAN region. In addition to the standard school day program, Smart schools operate additional community facing programs including opportunities for self-learning, research, and exploration at the tech and innovation labs. An additional focus is placed on health and wellbeing with a kingdom wide coverage of extracurricular activities, covering art, sports, education in life skills and digital learning. Even though technology will be integrated into primary and secondary education, educators will still play an important role in facilitating the learning outcomes for students. The shift from teacher-centered to student-centered learning will allow educators to facilitate learning for students, and mentor and support them in the areas they are lacking. On top of that, senior students will play a significant role in mentoring and coaching junior students. The peer support system in a well-established student union and in study clubs will become popular in the next two decades. The model has been adapted currently in certain projects; for example, with senior students mentoring junior students on literacy skills based on results from the TEST app and digital literacy assessments.

The current program at NGSs will inspire the design and development of technology and innovation labs at all schools starting from primary. School technology and innovation labs

expand the educational services such as career counselling and extracurricular activities. In addition, technology and innovation is the key factor in accelerating teaching and learning (Ministry of Education, Youth and Sport, 2016).

will be the platform for students to access support and mentorship from educators and mentors, as well as educational resources including digital tools and software-based learning. They will be places where students receive training on digital literacy and ICT skills, working in a team to solve specific design challenges. Students will also be able to access support and counselling regarding personal, school and career opportunities. They will additionally be able to access study guidance and tailored mentorship support from their seniors as part of their learning journey. Digital literacy assessments for first to third graders were successfully handed over to the Ministry of Education, Youth, and Sports (MoEYS) this year (Rath & Chin, 2018). This was initially implemented by World Education, with funding support from USAID's Development Innovations project. The project has been scaled to include 48 public schools, with more than 6,000 active current users across Cambodia (Rath & Chin, 2018). Seeing its impact to scale, the ministry has expressed a commitment to standardizing the assessments and making them available for all public schools to use and access. Being made accessible by all levels of education will ensure transparency, accountability, effectiveness, and efficiency in the delivery of education services. In addition, based on the instant results from the assessments, educators and senior mentors will be able to tailor their support to meet the needs of students, specifically slower learners. The digitization of these assessments and other learning materials will help schools become paperless, with the environment and climate change shaping the discussion over the next 20 years.

4.2 Scenario Space and Key Factors for Education: Inclusivity, STEM, and Smart Design

Education is a core priority for the Royal Government of Cambodia (RGC) as indicated in the Education Strategic Plan 2014-2018 (Ministry of Education, Youth and Sports, 2014). With a number of potential development avenues for education to be built around, I have identified four key factors that will support and guide the kingdom's development in education towards 2040 and beyond. Each of these factors represents a crucial aspect towards the realization of an inclusive and STEM focused education system in 2040.

1. **Coverage.** Education can only be completely inclusive so long as the coverage is universal within the kingdom. This relates to both the geographical dimension (physical institutions) and the digital dimension (access to online teaching materials).
2. **Facilities.** The design and provision of educational facilities is a contingent factor on the quality of the education system.
3. **Syllabus.** The outcome of future education on economy and society is contingent on what is being taught.
4. **Technology.** As technology continues to increase its role in everyday life, the application across education is a determining feature of the ultimate success of the model.

Each of these key factors are motivated by current features of the Cambodian education and learning system. These are discussed in turn below.

Policy and Priorities for Education Reform

With Cambodia aiming to reach high-income country status by 2050, human resource development is essential (Ministry of Education, Youth and Sport, 2014). In accordance with the education strategic plan for 2014-2018, MoEYS has highlighted three policy areas to equalize access to education, enhance the quality of learning, and improve the leadership and management of education staff. In addition, priority programs in the strategic plan also include

early childhood education, increased educational quality, scholarships, improved teacher performance, and technical and vocational education. MoEYS has additionally set out seven priorities to enhance the quality of education: introduce capacity building and professional development opportunities for teachers to improve their learning and teaching; increase teacher remuneration and benefits based on performance; provide sufficient educational resources; form an independent council to advise the government on education development and policy reform; improve vocational training programs for young people entering the workforce; and overhaul the instruction of sport and physical education. However, the challenges in basic education still remain, with a lack of competent educators and low pay still an issue. Education reforms began in 2014 after the appointment of a new minister. The first major reform was the crackdown on corruption during the national exams, one that received public support. The pass rate among Grade 12 students increased from 25.7% in 2014 to 62% in 2015 after the reform was implemented (Chea, n.d). In 2015, the government undertook the further reform of increasing teachers' salaries by 20% (Sem and Hem, 2016), which indicates a positive trend to incentivize educators.

Emergence of New Generation Schools

The NGS policy was introduced and piloted at certain public schools in 2014 (Ministry of Education, Youth and Sport, 2016). NGSs are autonomous public schools that focus on enhanced educational and teacher quality, and merit-based performance. There are advantages for educators, with incentives and professional development opportunities for career advancement. The newly re-formed schools also aim at providing STEM education and other learning opportunities for students, such as career counselling, science labs, mobile and ICT learning, and life skills education. The NGS initiative was developed in partnership with KAPE. The model utilizes extended hours of studying and allows the schools to apply innovation in education, for example by using ICT in education and making necessary changes to the curriculum. NGSs have also introduced a coding course for girls, Sisters of Code, to complement STEM education.

STEM Education

The goal of MoEYS with its recent education reforms is to focus on investment in human capital development and STEM education. This has also been demonstrated with the master plan for ICT in education (2009-2013), which shows the commitment of MoEYS to integrate the use of ICT to improve the quality of teaching and learning from basic education. Along with the ministry's vision and commitment, there has been an emerging trend over the past few years of NGOs and private sector partners initiating STEM education in partnership with public schools. This has led to the implementation of such programs as Technovation Cambodia, Sisters of Code, Champion Coders—a coding course for 6- to 15-year-olds—and E2STEM. These STEM programs have been adapted from those run in developed countries and localized for Cambodia. This focus on STEM education is designed to address the current challenge of a shortage of knowledge and skills among STEM professionals to meet the demands of the labor market.

Support from MoEYS on NGO Initiatives

As indicated in the master plan for ICT in education (Ministry of Education, Youth and Sport, 2010), the government has sought partnerships to minimize the cost of ICT. Non-state actors have begun to engage with the government in the early stages of their education projects. EdTech projects have been successful piloted, scaled-up, and handed over to MoEYS – the digital literacy assessments in early grade education as implemented by World Education and KAPE, the youth career counselling mobile application put into effect by InSTEDD iLab

Southeast Asia and KAPE, and the digital library and STEM books program funded by Smart and implemented by The Asia Foundation, for example. Additionally, as seen earlier, the E2STEM program, which aims to build the capacity of high school students in English, e-Learning, and to build the next generation of STEM professionals, has been introduced at a public school in Phnom Penh.

Education Technology Initiatives from Public and Private Institutions

There have been a number of education technology initiatives at both public and private institutions to enhance and accelerate innovative learning approaches. Open education resources have been endorsed by MoEYS for educators and students in accessing digital and multimedia teaching and learning materials for K12, including the G7-G9 learning English app. Moreover, recent technologies have been introduced into the classroom, such as the MoEYS App Scan augmented reality educational tool that brings visual interactions to science textbooks. ICT training for teachers started in 2013 but failed due to a lack of equipment (Ministry of Education, Youth and Sport, 2010). The educator's website has been developed to help them improve their teaching methodologies through digital materials and resources. In terms of non-formal education, the master plan for ICT in education also highlighted vocational and life skills training programs, as well as multimedia and video-based training for out-of-school youth to prepare for exams (Ministry of Education, Youth and Sport, 2010). Additionally, UNESCO, with support from MoEYS, has launched the BEEP program to provide a flexible e-learning platform for school dropouts to be able to complete a basic education to ensure future livelihoods and employment opportunities (UNESCO, 2018).

4.3 Policy Initiatives to Achieve the Ideal Scenario

The ideal scenario described in section one is contingent on undertaking appropriate policy steps. To this end individual and combinations of key factors will be discussed in line with policy solutions that can be undertaken to attain the end goal of inclusive and scientific education.

Facilities and Syllabus

Replicate New Generation Schools Model and Adapt International Best Practices. The successful NGS model allows school administrations and management teams to be autonomous in the decision-making process and improve the standard and quality of education through applied technology and innovation. Educational institutions should evaluate the NGS pilot model to determine what worked well, and what did not work. The lessons learned should be taken on board by other public schools, with recommendations for replicating the model. Given the recent trends for adapting global education programs, for instance the Technovation Challenge, and youth coding courses in Cambodia, conventional public schools should be encouraged to use the model as it would improve the standard of the public education system.

Coding and digital literacy are essential basic skills to acquire. At present, programming and coding programs, for instance the Sisters of Code project implemented by IT Academy STEP Cambodia and funded by USAID's Development Innovations, have gained support from MoEYS (IT STEP Academy, n.d) and have the potential to be replicated and scaled up for public schools. English language and coding skills should be introduced to students in the early grades. Teaching coding does not mean to create a pool of computer programmers, but rather for children to become confident and innovative problem solvers by acquiring critical thinking skills as they learn to communicate with a computer. This is an essential skill for children to obtain from a young age as they develop soft and hard skills with which to meet the future demands of the labor market. Coding not only teaches students about communicating with a

computer, but also encourages them to be curious, problem solving, and self-motivated learners (Pena, 2018).

Prioritize STEM Education at the Primary School Level. The government's recent reforms of public education with the piloting of the NGSs come as part of a drive to enhance the quality of education as well as putting a special focus on STEM education at the newly reformed schools. According to STEM Cambodia (2018), only three percent of students in higher education enrolled in the science, technology, engineering and mathematics related subjects, which indicates a future lack of human resources in the STEM fields. Employers in the information technology sectors have also identified a lack of qualified and competent human resources to meet demand in the labor markets (B2B Cambodia, 2017). Therefore, in order to meet the needs of a competitive labor market, especially in the ASEAN region, STEM education should be prioritized and integrated at the early grades of education in order to stimulate the interests of young children to be curious, self-motivated, and problem-solving learners. Equipped with such skills, Cambodian students will be able to build mobile apps, websites, software, and robots.

Investment in Education and Human Resources Development. Investment in public education is the first priority in the roadmap to the 2040 vision. At present, the government has taken initiatives to reform the Cambodian education system and increase its annual budget allocation. However, further investment in school infrastructure, particularly in remote areas, is essential, as is the capacity building and professional development of educators, with them receiving increased remuneration and benefits.

ASEAN is also to play an important role in contributing to educational advancement and human resource development through investment funds and accelerating innovative learning opportunities through scholarships and exchange programs for both students and educators. The ASEAN scholarship program by the Ministry of Education in Singapore and the Teaching Excellence and Achievement exchange program for educators to develop their teaching skills in the United States are two examples of such opportunities. At the same time, the government should leverage public-private sector partnerships (PPPs) to innovate and increase the efficiency of education service delivery. Such partnerships are crucial given the private sector's capacity to finance investment in school infrastructure and creative learning models, thereby improving standards. The scaling up of the NGS model to reach additional public schools in urban, rural, and remote areas needs major investment, in financing as well as infrastructure and human resources development. There remains a disparity between urban and rural areas in educational attainment. Public educational institutions and relevant key stakeholders should therefore take this into account and ensure that children living in remote areas receive an education and other learning opportunities equally.

Recruitment, Retention, and Incentives for Educators. According to Education Reform in Cambodia: Progress and Challenges in Basic Education (Sem and Hem, 2016), primary school educators earn approximately \$35-\$40 per month. This often forces them to work a second job in order to support their families or take on private tutoring to earn extra money. Therefore, they do not have the time to carry out research, prepare lesson plans, and support students outside of teaching hours, which consequently impacts the quality of education. Educators in rural areas are also often absent during harvesting season, which contributes to the dropout rate of rural students. There is additionally a shortage of teachers to meet current needs, particularly in the northeast of Cambodia, which therefore results in large class sizes (Sem and Hem, 2016). Recruiting qualified, competent, and committed people as educators is difficult as

they will look for jobs with higher income and greater professional development. To overcome these challenges, the recruitment and retention of competent teaching staff should be properly addressed.

There are certain steps that should be taken in the recruitment process. The minimum education level for primary and secondary school should be increased to at least a Bachelor's degree in Education, while top performing students should be incentivized to apply for a teaching position. A higher standard and more competitive recruitment process would better motivate qualified people to apply. Furthermore, remunerations and benefits for educators should increase in line with the market value. As mentioned earlier, a teacher's salary is fairly low and not able to provide a decent standard of living. Additionally, educational institutions should provide personal and professional development opportunities in order to retain competent staff. For example, scholarships, exchange programs, and exposure visits for educators to learn from schools in developed countries should be provided so they can adapt the models and programs they experience locally. Furthermore, appreciation, awards, and incentives for the top performing teaching staff should be applied as this will increase their recognition in society and boost motivation.

Improve the Capacity of Educators in Digital Literacy and ICT. As Cambodia embraces the Fourth Industrial Revolution (also known as Industry 4.0), a basic knowledge of digital literacy and ICT is essential for Cambodia to keep up with its ASEAN neighbors. On top of the raised qualifications for teachers and their increased competency, basics skills in digital literacy and ICT, such as the use of digital devices, social media platforms, and digital security, are important skills for educators to acquire in order to maximize their teaching proficiency as well as the learning journey for students. Currently, the digital platform for educators and instructors is the Krou website, where they access materials to improve lessons plans at all levels from primary to higher education⁹. While Krou is a good starting point, in order to get the most from it, basic knowledge on how to access and best use digital platforms is crucial. It is important to consider whether a platform has been designed to meet the needs of teachers, how often they use it, how it adds value to their teaching methodology, and in which ways teachers can use its digital and multimedia materials in the classroom. The policy option is to integrate digital literacy and ICT skills in the teacher training curriculum. Educators not familiar with using technology in the classroom should receive coaching and support from those with digital experience. Capacity building in digital literacy and ICT would help educators in utilizing such skills in the classroom, with students making use of digital tools and social media platforms for research and learning.

Public and Private Partnerships for Sustainability. There has been an increase in the role of non-state actors through PPPs to improve the quality of education and the long-term sustainability of learning projects (Kampuchean Action for Primary Education, 2014). There have also been the successful pilots of Edtech projects. The TEST app digital literacy assessment, for instance, which was handed over to MoEYS for long-term sustainability assessments. The E2STEM integrated English, e-learning and STEM education project at a Phnom Penh high school is another. The aim is to build the capacity of the students in STEM subjects through modern teaching methodologies. Similar to the NGS model, the initiative was set up by a non-profit organization. The selection process for E2STEM is very competitive, with only highly competent students able to join the program. The initial pilot proved the effectiveness of its innovative approach to education and highlights the importance of public

⁹ Krou Website: Open Educational Resources, available at <http://krou.moeys.gov.kh/en/>

educational institutions collaborating with NGOs and private sector partners in developing integrated education approaches that are sustainable in the long term.

Technology

With the Fourth Industrial Revolution, technological advancement and innovation will not only have a significant impact on the socio-economic development of Cambodia, but also on the education sector, with students, educators, and public and private institutions embracing technology to accelerate innovative learning. Free and affordable basic programming and coding courses will have been made available for children from the age of six. Given advancements in technology, students will be greater connected in a flexible learning environment, becoming tech natives in comparison with previous generations. At the same time, there will be new emerging actors, such as Education and Technology (EdTech) companies and private sector partnership funds to incubate and accelerate digital programs for both children and adults.

User-Centered Design and User Uptake in Technology. Technology can greatly increase the quality, effectiveness, and efficiency of education; however, if it is not designed to meet the needs of its users, particularly institutions, educators, and students, it will not add value to education. Prior to the design of technology for educational projects, the educational institutions, policymakers, development practitioners, and relevant stakeholders concerned should carry out rapid design research to assess the needs of educators and students, as well as the challenges hindering education service delivery that they may be facing. Rapid design research will provide useful insights for the development team on how to design EdTech tools that respond to the needs and concerns of educators. For instance, prior to the development of open education resources, the development team should assess the educators' uptake of the technology—the digital literacy and ICT skills of the teaching staff, and what kind of tech tools they use to conduct research and prepare lesson plans, for example.

The Open Education Resources (OER) developed and managed by MoEYS provides educators with digital materials and resources at all levels and subjects that they can use to improve their teaching methodologies. OER is a good starting point, but it still has areas for improvement. The platform is currently only in English and might not be accessible for some educators with language and digital know-how barriers. OER can be adapted to the learning management system (LMS) to facilitate the administration and management of teaching and learning. According to Computer Aided Learning (n.d), LMS provides a number of benefits for educational institutions, educators, and students, such as supporting in-person learning through blended learning and virtual classrooms, personalized content with multimedia teaching materials. These can enhance the effectiveness and efficiency of teaching methodologies, the management of student assessments, and communication between school administration, teachers, and students. LMS is very popular in the higher education systems of developed countries and has the potential to be applied and integrated into K12 education in Cambodia. Another area to be considered is the effective and ethical use of technology in teaching and learning. Technology can improve learning outcomes, but this might not be the only factor to take into consideration. Digital security and safety for both students and educators should be properly addressed as there have been growing concerns over cyberbullying and user privacy.

Coverage

Mandatory Education for All Children. The first priority is to equalize access to education, especially for children living in remote areas and those from ethnic and minority groups. In

order to bridge the gap between urban and rural education standards, appropriate measures should be taken such as building school infrastructure, especially in remote areas, to make them easily accessible for children, and putting in place a public school transportation service that allows children living far away to be able to attend classes. Children should also be incentivized to stay in school through support programs, particularly the school feeding schemes currently being implemented by NGOs. Given the lack of educators in remote areas, educational institutions should recruit qualified teaching staff through identifying the top-performing students in communities and encourage them to apply for teaching positions (Sem and Hem, 2016). In addition, capacity building and training with personal and professional development opportunities are important for current educators to improve their teaching methodologies and keep up with innovative trends in education.

Support Systems for Students with Disabilities and From Disadvantaged Backgrounds.

The dropout rate among lower-secondary school students in Cambodia was 19.2% between 2015-2016 (Sem and Hem, 2016) and mainly due to poverty, with the rate much higher in rural areas, where a lack of educators also undermined the quality of the education on offer. Support systems for disabled children are also limited in the kingdom, with special education services only available at a handful of disability NGOs. Krousar Thmey, for example, offers special education services for visually and hearing-impaired children.

School facilities and infrastructure in Cambodia often do not support the needs of children. Long distances to schools on poor roads coupled with poverty often means disabled and disadvantaged children do not attend school (Sem and Hem, 2016). The disabled and disadvantaged are often neglected by society in terms of education, social activities, and employment. In this regard, MoEYS, the Ministry of Social Affairs, Veterans and Youth Rehabilitation (MoSVY), Ministry of Health (MoH), policymakers and NGOs should collaborate in joint initiatives to design and develop programs addressing the needs of children with disabilities and special needs, as well as those from disadvantaged backgrounds. Schools should be fitted with wheelchair ramps, multi-purpose toilets, and special learning spaces with assistive devices, for example, to provide an accessible environment for children with disabilities. Education in digital literacy and ICT should also be made accessible to them, with educational institutions utilizing multimedia tools to assist disabled children in learning. Additionally, building the capacity of educators regarding inclusive education methods is hugely important, ensuring they have the necessary knowledge and tools to provide special education services to the students that need them. Educational institutions should encourage children with disabilities to go to school despite the restrictions of poverty by implementing scaled up versions of the school feeding program, for instance.

Plan International Cambodia and Kampuchea Action to Promote Education (KAPE)¹⁰, for example, provide children with free uniforms, bags, books, and school materials. They encourage parents to send their children to school through providing school and take-home meals. Services such as escorting pupils to school, assistive devices, and health support for children in need should be established and made available at all times. Life skills education, vocational training, internships, and apprenticeship programs should also be tailored to students with special needs.

¹⁰ Kampuchea Action to Promote Education is one of the leading local NGOs that aims to equalize the access to quality education for Cambodians, with the primary focus on integrating innovative approaches in Cambodia's education system. Available at <http://www.kapekh.org/en/>

4.4 Inclusivity, STEM, and Smart Design Under the Baseline Scenario: Business as Usual in 2040

Notwithstanding the positive visions of human capital development of Cambodia in 2040, without major interventions to improve the quality of education, Cambodia will face several challenges. Human capital development is one of the most important contributing factors in becoming an upper-middle-income country in 2030. Transitions in the political landscape could have a significant impact in terms of foreign investment and private partnership funding in the education budget. Reforms in the education system, particularly expanding the current NGS model, and infrastructure, recruitment, retention, and capacity building, as well as incentives for Cambodian educators, need major financial investment. Therefore, a decrease in foreign aid investment and budget deficits would have an adverse effect on education sector development. Education was approved \$915 million in the budget for 2019, a 7.32% increase on the previous year (Kay, 2018). The 2019 national budget allocation aimed to increase the salary of educators to \$300 per month (Kay, 2018). The increase, coupled with a competitive working environment, intended to enable them to put their focus on education service delivery, without the distraction of needing second jobs. Changes to the allocation, particularly budget cuts, could have negative influences on the recruitment and retention of the necessary capable educators.

The NGS model is regarded as a successful reform by MoEYS. However, investment for its scaling-up requires increased budget allocation and additional human resources. The current model has not yet been implemented in all schools in Cambodia. This could create internal inequality, forcing children in rural areas to move to the cities in pursuit of a better education. With the high cost of private education, low-income families are not able to afford such schools. The children left behind by migrant parents will not have an equal opportunity to access education, given the standards and infrastructure available at the schools in rural areas.

From a technological perspective, there are two potential issues as regards the development of an inclusive and STEM focused system. Firstly, there needs to be a targeted nationwide infrastructure project to ensure that coverage is universal. In the absence of full coverage there will emerge a gap between students educated under a top Smart school model, and a, likely, rural model inhibited by a lack of resources. This itself could cause an issue whereby Cambodia experiences a major gap in quality provision between urban and rural schools. Separately there is also a need to ensure that the school population is educated in how to use new digital technologies as they emerge. This will require teachers to also understand the process. In the absence of suitable teacher training programs, the application of technology in the classroom will be uneven and fail to achieve the intended outcome.

From a syllabus perspective there is a danger that a full STEM focus faces over-educating a workforce prior to the changing demands of its economy. In this sense, even if inclusive STEM education was achievable there is a need for an economic development plan that can ensure the Cambodian workforce can make use of highly educated members of society under the new system. In its absence the kingdom faces a brain-drain of students to markets that can provide employment opportunities.

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CHAPTER 5

New Generation Schools: Addressing Cambodia's Chronic Inability to Deliver Quality Education

By CHEA Vatana & CHEN Soklim

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Cambodia has made commendable efforts to reconstruct its educational system and has undertaken several significant initiatives related to overall quality, infrastructure upgrading, and facilities enhancement. In this picture, students, seated in class while observing social distancing measures against the COVID-19 coronavirus, pay attention to their mask-clad teacher in Phnom Penh on September 7, 2020, as schools reopen across the country. Picture: TANG CHHIN Sothy, AFP.

**Vatana Chea is Research Associate at the Center for Educational Research and Innovation, Cambodia Development Resource Institute. Soklim Chen is Associate Research Assistant at the Center for Educational Research and Innovation, Cambodia Development Resource Institute. The authors would like to acknowledge funding support from the Lancang Mekong Cooperation Special Fund.*

5.1 EXECUTIVE SUMMARY

- In recent years, the Cambodian government has introduced a reform agenda to enhance the quality of teaching and learning, improve the bureaucratic administration of education, and address other major challenges affecting public schools.
- The new agenda has led to several remarkable transformations in Cambodia's educational system, including the introduction of a new innovative school model called New Generation School.
 - However, the sustainability and scalability of this new model are questionable due to the large investment needed to operate these schools, and the limited government budget;
 - while community involvement can help mobilise resources, there is a limit to how much poor households can voluntarily contribute; and
 - the true effectiveness of the New Generation School has not yet been empirically evaluated although descriptive statistics have demonstrated some signs of success.
- Some other approaches adopted by the government over the years include increasing teacher's salary to raise teacher motivation.

5.2 BACKGROUND

According to the World Bank, the world is now experiencing an unprecedented global learning crisis. While many countries have made great efforts in providing educational access to their population and in encouraging universal enrolment for general education, a large number of children in developing countries reaches adulthood without acquiring necessary skills in reading and arithmetic despite having spent many years in school¹. Being in school is not equivalent to learning, and therefore, school enrolment is a necessary but not a sufficient condition for an individual to acquire knowledge and build a fulfilling life. Only when quality education is delivered adequately, will schooling improve individual and household livelihoods and pull a country out of economic misery.

Cambodia's National Education Strategic Plan 2019-2023 is a policy that reflects the aspiration of above statement. The government has introduced a reform agenda that enhances quality of teaching and learning, and the new agenda has led to several notable transformations within the Cambodian educational system including, the National Baccalaureate II Examination, i.e. the grade 12 exit examinations. The exam provides an indication of how Cambodian students perform on average when it comes to strict standardised evaluation and in turn reveals the degree of educational quality delivered. This refers in particular to the rampant cheating that used to occur during the examination. In the academic year 2013-14, when the reform was initially implemented, merely 25.7 percent of 89,937 students passed the exam on their first attempt. This was a considerable decline from previous years in which more than 80 percent of students generally passed with flying colours. Other standardised tests such as the Program for International Student Assessment for Development (PISA-D) in 2017 similarly indicate limited abilities in Cambodian students in comparison with international standards.

This essay investigates schooling challenges in Cambodia and its experience and efforts to make efficient use of limited resources.

5.3 CHALLENGES IN EDUCATIONAL SYSTEM

There are several intertwined factors contributing to the unfavourable educational quality in Cambodia in general. Firstly, after the collapse of the Khmer Rouge in 1979 through to the end of the 2010s, the government prioritised increasing access to education, i.e. increasing enrolment, especially in rural areas. The country has now almost achieved universal primary school enrolment, and there is little room for further improvement on that front. However, a major problem presents itself when students get promoted to secondary level. There, we see a prevalent and perpetual dropout problem. While it is true that many factors contribute to students' decision to leave school, the major determinants include lack of enthusiasm to learn and poor performance,² which are in turn due to the low quality of teachers and to the education delivered³.

This brings us to the second aspect of this inquiry, i.e. the efficacy of traditional teaching methods, which centre around rote learning and memorisation. Using qualitative data, King identified several key challenges including teachers' weak curriculum knowledge, deficient pedagogical skills, and lack of professional development⁴. In addition, for many Cambodian individuals who are still dyed-in-the-wool conservatives, education means instilling traditional beliefs and discipline. In other words, younger individuals are expected to follow what their seniors or those with higher social status say, or be accused of being impolite. Due to such a restraining environment, the student innovativeness cannot flourish. The PISA-D results have

been obvious corroboration of this view and reflect low levels of critical thinking and reasoning skills⁵.

Thirdly, many teachers recruited in the 1980s and 1990s and who are still teaching today are unfit to teach because of their poor qualifications, due in turn to limited professional support and a low-capacity development⁶. They were often recruited as teachers due to the paucity of literate individuals in society after the massacres carried out by the Khmer Rouge, which targeted the intelligentsia. Owing to these disadvantages, some senior teachers find it difficult to adopt new cutting-edge curricula or modern teaching technologies⁷. Finally, it is not unheard of that some teaching staff at government-funded schools impose unofficial fees, including private tutoring, to supplement their income⁸. This happens due to low accountability for teacher's work within the classroom. Having said that, private tutoring also suggests that students in general are not taught the full curriculum proposed by the state.

Due to the problems outlined above, which can be considered chronic illnesses of the education system, the Cambodian government has undertaken a fresh initiative aimed at cleaning up the bureaucratic administration and introduced a significant school reform that moves away from the traditional school model. This reformation has led to the development and adoption of a new innovative school model called New Generation School.

5.4 NEW GENERATION SCHOOL

New Generation School (NGS) is a nascent initiative and the Cambodian equivalent of Charter School in the United States. Since 2014, the government has sought to establish sustainable and autonomous public schools that are flexible enough to equip students with quality education. Built on a pilot project called the Beacon School Initiative, which was first implemented in 2011 by the Kampuchean Action to Promote Education and piloted by the Ministry of Education, Youth and Sports (MoEYS) since 2015, this model introduces a completely new way of teaching, learning and management.

NGS uses a more modern and innovative curriculum that focuses on STEM, ICT, and 21st century skills. Moreover, NGS students are enrolled full-time instead of attending either morning or afternoon shifts as per current practice. Such schools also receive substantial public investment and are given greater independence in instruction, resource allocation, and operation to cut bureaucratic red tape. It is important to note, however, that this investment is linked to performance, and the schools may lose their investment if they do not maintain the higher educational standards explicitly laid out in the standards of accreditation. Like charter schools, NGS existence is directly tied to the ability of schools to serve students and parents (otherwise they risk losing their accreditation), which comes along with privileges in using special government funds, receiving high quality professional development, and performance-based payments.

Nonetheless, the paramount purpose of NGS is to deliver high quality education to children from all social strata, not just the privileged few who attend private urban schools. In this regard, NGS seeks to reduce inequality in accessing high quality education. In Cambodia (and most countries), there exist private schools, which provide parents a choice for their children's education for a fee, alongside public educational institutions. This fee is not cheap, and ranges from US\$1,000 to US\$20,000 per year.⁹ As many parents are increasingly dissatisfied with the public school system and teachers' misbehaviour, they find private schools more appealing. As

a result, there has been a sharp increase in enrolment in private schools, jumping from 168,287 students in the 2016-17 academic year to 253,569 students in 2019-20.¹⁰

Although privatisation of education offers a new alternative for households, it is also problematic in that the proliferation of private schools amplify inequitable access to high quality education for poor families. One study found that the urban middle-class population is increasingly sending their children to private schools, and public schools are losing between 30-50% in enrolment as a result¹¹. In some urban areas, the drop in enrolment is as high as 75 percent. Those staying put in public schools are mostly rural and urban poor students.¹² On that account, the Cambodian educational system has gradually evolved into a dualism in which the privately-paid and better-quality learning institutions are exclusively populated by the urban middle and upper class while the lower standard normal schools are deemed the only resort for students from deprived backgrounds. If quality education is a means to an economic end, then the unfettered proliferation of private schools works to limit social mobility and create social injustice.

A key difference between traditional normal schools and NGS is that enrolment is generally a matter of choice. While the former is free of charge officially, the latter is authorised to negotiate voluntary contributions from households to meet mounting educational needs and cope with future budgetary challenges after three years of operation and after receiving an official accreditation as an NGS. As of 2020, the government had invested roughly US\$6.62 million in 10 NGS sites and one research centre serving 5,722 students in four provinces and the capital city of Phnom Penh, with plans for expansion to 100 schools across Cambodia by 2022.¹³ But with unit costs of approximately US\$290 per student per year, sustainability and scalability have been key constraining factors due to limited government budget. Therefore, non-mandatory contributions, starting at US\$65 for each rural household and US\$200 for an urban family per year are regarded as a key strategy to sustain NGS programming. In addition, the MoEYS had since September 2016 planned to establish a Social Equity Fund to subsidise extremely impoverished households who cannot make any kind of contribution.¹⁴ Nonetheless, to date, it is uncertain when such a fund will be launched and how other necessary resources will be mobilised to support such an ambitious expansion.

From the very beginning, contributions by urban households to the NGS system are anticipated to be highly feasible, as parents had been paying an even larger amount of money unofficially at public schools through the private tutoring system. In addition, the proliferation of private schools suggests that many households are more than willing to pay thousands of dollars for high quality education for their children. However, it is worth highlighting that most NGSs are situated in big towns or cities (or suburban areas), and only some people are exempted from user fees. Therefore, if such schools were to be established far from the urban region where the vast majority of parents are unable to make voluntary payments, their sustainability would be uncertain. Moreover, the teaching staff and other personnel may not be willing to travel and work in areas too far from the city centre.

It is also challenging to operate NGS on a small scale. In Phnom Penh, NGSs only offer secondary education starting from grade 7. Students entering such schools from normal primary schools may therefore not have the needed prerequisites to meet the high standards expected. In some provinces, except for Kampong Cham, the school only provides primary education after which students have to enroll in typical public schools to continue their secondary level. In such a case, their educational development might again be compromised unless they are

willing to travel to distant provinces. Expanding NGS facilities is therefore necessary and inevitable.

One crucial question remains: How effective is NGS? Or simply put, are NGS students performing better than those from normal schools? From available statistics, a quick and anecdotal answer is, 'Yes.' While the average passing rate on the National Bac II Exam in 2019 was 68 percent, that of Preah Sisowat High School and Hun Sen Kampong Cham High School, both of which are NGS, were a spectacular 94 and 84 percent respectively. Nonetheless, such statistical data have to be interpreted with caution because there is likely a selection bias here. It is worth noting that students who wish to enroll in NGS have to meet its eligibility criteria which involve passing an entrance examination. Generally speaking, students are selected based on merit, and outstanding students are more likely to be admitted. In addition, those with high ambition, confidence or ability are more likely to self-select themselves to apply and thereby be enrolled. These characteristics are not easily captured by statistics.

Therefore, high pass rates might significantly reflect students' own natural aptitude rather than the contribution of NGS. If the former turns out to be true, then NGS should not be deemed to have been very successful since students who have not attended NGS, but with higher ability, are more likely to outperform their less able peers and pass the national Grade 12 exit exam. Furthermore, given their access to large public fund, NGS might not be a cost-effective mechanism, but is a drain on the government's scanty resources. For a developing country like Cambodia, knowing where money should best be spent is of great importance. No rigorous evaluation has yet been done to directly measure the effect of exposure to NGS on a student's performance.

5.5 ALTERNATIVE NOSTRUMS

NGS is not the only alternative model to have been implemented in Cambodia. Over the years, various approaches such as conditional cash transfers, scholarship provisions, and school breakfast programmes, inter alia, were introduced by either the government or non-profit organisations; yet the vast majority of them did not prevail.¹⁵ Furthermore, these approaches, when in full swing, only increased enrolment, retention, and/or attendance rather than enhance quality;¹⁶ thus, they were less relevant to the goal of preparing students for twenty-first-century work.

Several policies have also been successively passed to attract, retain and motivate better qualified teachers; indeed, raising teachers' salary across the board has been among the top priorities of recent educational reforms to curb a political blame game attributing the teachers' inability to carry out their expected teaching responsibilities to their low salary. Nevertheless, using the grade-12 pass rate as evidence, the efficacy of blanket salary increases and their subsequent impact on students' performance is questionable. If teachers' salary is a main indicator of students' learning outcome in Cambodia, and increasing their low wage leads to better student performance as found elsewhere,¹⁷ then it is truly doubtful whether or not, on average, Cambodian teachers are poorly paid? Such an idea can be justified because beyond a certain level, raising wages will add very little extra marginal effect if any at all to student learning outcomes.

Having said that, teachers' salaries are likely much higher than that of a typical salaryman if we look at the ratio of their premium to working hours. Considering that most teachers only teach either morning or afternoon shifts and only a few days per week, a simple wage

comparison between office workers and teachers by adjusting for working hours is likely to show that teachers are handsomely paid. Nonetheless, it is worth noting that for political reasons, the ministry has continued to introduce reform by using carrots without stick, and teachers are generally not held accountable for a student's poor performance or misconduct.

5.6 FINAL REMARKS

Cambodia has made commendable efforts to reconstruct its educational system and has undertaken several significant initiatives related to overall quality, infrastructure upgrading, and facilities enhancement. While these achievements deserve praise, chronic challenges continue to persist, leading to an attempt to address them through the introduction of the NGS approach.

Despite being promising in appearance, the true effectiveness of NGS has not been empirically validated. Such empirical inquiries would bolster the evidence base of policy intervention both in terms of operational efficiency and cost effectiveness. Without such a study and sufficient knowledge about the effect itself, Cambodia might be incurring too much a risk. In other words, the country might unintentionally be directing its capital toward lower-return investments. On the other hand, with strong empirical evidence showing its positive efficacy, one could more easily push for an expansion of NGS and of annual public spending for education.

¹ World Bank. World Development Report 2018: Learning to realize education's promise. Washington D.C., 2018.

² National Institute of Statistics. Cambodia Socio-Economic Survey 2014. Phnom Penh: Ministry of Planning, 2015.

³ Bettencourt EM, Gillett MH, Gall MD, Hull RE. Effects of Teacher Enthusiasm Training on Student On-task Behavior and Achievement. *Am Educ Res J.* 1983 Jan 1;20(3):435–50; and Patrick BC, Hisley J, Kempler T. “What’s Everybody So Excited About?”: The Effects of Teacher Enthusiasm on Student Intrinsic Motivation and Vitality. *J Exp Educ.* 2000 Jan 1;68(3):217–36.

⁴ King E. CFS policy and Cambodian teacher education and training: Beeby revisited. *Int Educ J Comp Perspect.* 2018;17(2):16–29.

⁵ Ministry of Education Youth and Sport. Education in Cambodia: Findings from Cambodia's experience in PISA for Development. Phnom Penh: Ministry of Education, Youth and Sport, 2018.

⁶ Hang C. Education Management Reform Strategies for Enhancing the Quality Citizenship in Cambodia. Chulalongkorn University, 2017.

⁷ Ministry of Education Youth and Sport. New Generation School Annual Achievement Report: Year Implementation (Jan - Dec 2019). Phnom Penh, 2020.

⁸ Brehm W. The contemporary landscape of education in Cambodia: Hybrid spaces of the public and private. In: Brickell K, Springer S, editors. *The Handbook of Contemporary Cambodia*. Abingdon, Oxon: Routledge, 2017. These unofficial fees sometimes comes in the form of quid pro quo payments for better grades, and thus students from disadvantaged families tend to suffer the most as they are unlikely to be able to pay, and hence receive low grades.

⁹ Brehm W. The contemporary landscape of education in Cambodia: Hybrid spaces of the public and private. In: Brickell K, Springer S, editors. *The Handbook of Contemporary Cambodia*. Abingdon, Oxon: Routledge, 2017.

¹⁰ Department of Education Management Information System. Private Education Statistics & Indicators 2019-2020. Phnom Penh, 2020; and Department of Education Management Information System. Private Education Statistics & Indicators 2017 - 2018. Phnom Penh, 2018.

¹¹ Kampuchean Action to Promote Education. Enrolment Trends in Phnom Penh: A Needs Assessment. Phnom Penh; 2013.

¹² Kampuchean Action to Promote Education. Enrolment Trends in Phnom Penh: A Needs Assessment. Phnom Penh; 2013.

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- ¹⁴ Ministry of Education Youth and Sport. New Generation School Operational Policy Guidelines. Phnom Penh, 2019.
- ¹⁵ Bredenberg K. Secondary Education: Progress with Reforming Secondary Education. In: Chhem R, editor. Education in Cambodia: From Year Zero to International Standards. Singapore: Springer; forthcoming.
- ¹⁷ Filmer D, Schady N. Getting Girls into School: Evidence from a Scholarship Program in Cambodia. *Econ Dev Cult Change*. 2008;56(3):581–617; and Pellini A, Bredenberg K. Basic education clusters in Cambodia: looking at the future while learning from the past. *Dev Pract*. 2015 Apr 3;25(3):419–32.
- ¹⁷ Evans D, Yuan F, Filmer D. Are Teachers in Africa Poorly Paid? Evidence from 15 Countries. Washington D.C.; 2020. Report No.: World Bank Policy Research Working Paper 9358.

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CHAPTER 6

Cambodia's New Generation School Reforms

By Melissa DONAHER and Nyoya WU

Reprinted from *Empowering Teachers to Build a Better World: How Six Nations Support Teachers for 21st Education* (Springer Publishers, 2020)

Abstract The New Generation Schools (NGS) reform in Cambodia was launched in 2015 with the aim of improving the quality and relevance of education to better prepare Cambodian youth for the twenty-first-century workforce. The reform aims to develop students' cognitive competencies, with a particular focus on STEM, ICT, and critical thinking skills, as well as inter- and intrapersonal competencies. As of 2018, the reform operated in 10 designed "New Generation Schools" across the country which combinedly served over 4,000 students. New Generation Schools are unique in that they operate similar to charter schools in the United States, where school-based administrators and staff have a high degree of autonomy over school operations, resources, curriculum, and instruction. This is coupled with high professional standards that hold schools accountable for improving the quality of teaching and learning in their schools. To support teachers in using their autonomy to deliver innovative, twenty-first century instruction, the reform includes a robust teacher professional development program based on a reflective teaching model. The professional development program employs a variety of modalities, including pre-service training, professional learning communities, career path planning, individual feedback, classroom observations, visits to other schools, and ongoing in-service training. Ultimately, as the reform scales, it aims to create a larger cultural shift in the education system by professionalizing the role of the Cambodian teacher. The NGS reform provides valuable insights for practitioners, researchers, policymakers, and funders looking to enhance teacher capabilities to deliver twenty-first century instruction through a combination of high professional standards and robust professional development.

M. Donaher

1812 Wyoming Ave NW, Unit 403, Washington, DC 20009, USA

N. Wu (B)

1818 H Street NW, Washington, DC 20433, USA

e-mail: nuoyanora@alumni.harvard.edu

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6.1 Introduction

In 2015, the Cambodian national government launched the New Generation Schools (NGS) reform. In support of the broader national goal of enhancing the quality and relevance of education, the program provides greater autonomy and funding to designated “New Generation Schools” with the aim of spurring innovation in curriculum, instructional practices and use of resources to ultimately improve learning outcomes, and prepare students for the twenty-first century workforce. Now in its third full year of implementation, NGS currently operates at 10 school sites (6 secondary and 4 primary) and serves approximately 4,000 students. Since 2015, the Ministry has invested \$4.65 million USD in NGS, with plans for further investment and expansion to 100 schools by 2022.

This chapter analyzes the theory of change and implementation of the NGS reform, with a specific focus on how the reform prepares teachers to deliver innovative, twenty-first century instruction. First, we consider the context of the reform within the broader Cambodian economy and education system. Second, we describe the design and planning of the reform. Next, we describe the reform’s theory of action, which is as follows: If the reform creates a system and culture of high teacher professionalism and provides high-quality professional development to teachers, then teachers will utilize innovative teaching and learning practices and help students develop twenty-first century skills. We also present preliminary process and outcome results of the NGS reform. Finally, we identify lessons learned from the NGS reform which can be leveraged in other contexts, aiming to support teachers in delivering innovative twenty-first century instruction.

6.2 Methods

Our analysis was conducted based on a review of reports provided by the Ministry of Education, Youth and Sports and KAPE, as well as information publicly available on the internet. We received an email response to our questions from H.E. CharVann Lor, the Deputy Director General of Education at the Ministry of Education, Youth and Sports. We also conducted a phone interview with KAPE Senior Technical Advisor, Kurt Bredenberg, with subsequent follow-up via email. We would like to thank Kurt Bredenberg and the Ministry of Education in Cambodia for their support of our study. Given our limited data sources and the scope of the project, we were unable to conduct additional fieldwork or other stakeholder interviews.

6.3 Context of the New Generation Schools Reform

Cambodia’s recent history and current economic state are important driving factors underlying the national education goals. In the 1970s, the Khmer Rouge regime decimated Cambodia’s formal education system and eradicated a generation of education professionals. Since then, the government has made great progress in rebuilding education institutions, with a primary focus on improving access to and quality of primary education. With funding from the World

Bank in 2005, the government increased its investment in secondary education to meet the demand for a more skilled workforce. However, Cambodia continues to face several challenges to its economic growth and development, including economic competition in the ASEAN region and globally, increased urbanization, and a population with a large, unskilled youth workforce (Bredenberg, 2018). For Cambodia to achieve “upper-middle income” status by 2030, the national government has committed to improving education.

The NGS reform is one of 15 initiatives in the Cambodian National Education Strategic Plan (2014–2018), which aims to prepare students for the twenty-first century workforce. The Education Strategic Plan targets the Ministry of Education, Youth, and Sport’s vision that “graduates from all its institutions will meet regional and international standards and will be competitive in the job markets worldwide and act as engines for social and economic development in Cambodia” (Ministry of Education, 2014). The Ministry’s three-core policy priorities are equity, quality and relevance of learning, and effective school leadership and management. The plan includes goals for improving language, math, science and technology instruction, as well as skills in communication, research, problem-solving and decision-making. It also includes a goal to ensure students have an “understanding of human rights as responsible citizens as an individual and a member of a family, community, society, region and the world” (Ministry of Education, 2014). These national goals guided the development of the NGS program.

Low teacher quality in Cambodia poses a major challenge to reform. In 2011, the World Bank’s Systems Approach for Better Education Results (SABER) analysis of Cambodia indicated teacher training programs did not include sufficient practical professional experience to help teachers transition from learning to teaching. In addition, few incentive structures were in place to motivate teacher performance and systemic professional development was absent for all primary and secondary teachers (World Bank, 2011). As of 2015, Cambodian teachers are more highly educated than in the past, but significant gaps remain in qualifications across levels and between urban and rural areas. Two-thirds of Cambodian teachers held a Bachelor’s degree, with a greater proportion at the secondary than primary level. For example, primary teachers in rural schools may have only completed grade 9, whereas in urban areas primary teachers have typically completed at least grade 12 (Tandon & Fukao, 2015). Teacher development takes place through District Training and Monitoring Teams (DTMTs) and through workshops arranged by the Ministry and development partners. The current model, however, has also drawn criticism for not providing broader ongoing capacity development and follow-up for teachers (King, 2017).

6.4 Design and Planning of New Generation Schools Reform

6.4.1 Reform Goals

The first step in the design of the NGS reform was to define specific goals for student learning aligned to twenty-first century workforce needs. Given the burgeoning global technology sector, the NGS reform aims to develop students’ cognitive competencies in STEM (Science,

Technology, Engineering, and Mathematics), ICT (Information and Communications Technology) and critical thinking.

6.4.2 Reform Design and Planning

The NGS reform was strongly influenced by the international school-based management (SBM) movement. This includes both the charter school movement in the United States as well as innovative schools in South-East Asia, which provide a high level of autonomy to school-based staff. Recent research has shown school-based management can be effective in improving student outcomes, but effective implementation requires school leaders have expertise in both instruction and management, as well as the true autonomy to implement changes in their schools (Demas & Arcia, 2015).

New Generation Schools originated in 2011 with the Beacon School Initiative (BSI) pilot project funded by an Australian development agency and implemented by the Cambodian education non-profit Kampuchean Action for Primary Education (KAPE) (Bredenberg, 2018). In 2013, the new Cambodian Minister of Education, Dr. Hang Chuon Naron, mandated to improve the current education system and was empowered by the Prime Minister to exercise his political leadership. In 2015, the Ministry of Education approached KAPE to replicate the original BSI pilot on a larger scale, which became the NGS reform (Bredenberg, 2018). NGS is no longer a time-bounded project, but instead a comprehensive education reform within the national education strategic plan facilitated by a public–private partnership between the Ministry of Education and KAPE. After the development of the NGS policy framework and accreditation guidelines in 2015, the NGS reform has expanded from 2016 to 2018 (Bredenberg, 2018). In 2017, NGS began to operate in primary schools in addition to operating in secondary schools.

The NGS reform is implemented by KAPE with strong support from the Ministry of Education, Youth and Sports, the Ministry of Economy and Finance, and the Ministry of Public Works (CharVann, 2018). NGS schools operate in four provinces (Kandal, Kampong Cham, Svay Rieng, Kg Speu) and the capital city Phnom Penh. By 2017, ten NGS schools were established with six secondary schools and four primary schools. By 2017, NGS student enrollment reached 4,039 students in 117 classes. There are three NGS school models. Seven schools follow the “Whole School” model, where the entire school is a NGS school, as opposed to the “School in a School Model”, currently only operating at Sisovath High School, which refers to a “distinct and independent institutional environment that is created within an existing school where a majority of school stakeholders are opposed to educational reforms because they challenge certain vested interests” (Ministry of Education, 2018a, b). The remaining two schools operate under the “New School” Model, which refers to a newly established school where principals and teachers are newly hired (Ministry of Education, 2018a, b).

6.4.3 Reform Funding

From 2015 to 2018, \$4.65 million USD was invested in the NGS reform from a combination of public and private sources. NGSs are funded by the government, development partners and

school-generated income, such as from student and family contributions (CharVann, 2018). Approximately 80% of the investment in NGS has been funded by the Ministry of Education. The remaining 20% has come from three major foundations since 2015: Franks Family Foundation Child Fund Australia and Oaktree Foundation. In 2017, the Ministry invested approximately \$550 USD per secondary student in New Generation Schools (Ministry of Education, 2018a, b). Some NGS schools also generate their own additional income, and two of the NGS primary schools are entirely self-funded (Ministry of Education, 2018a, b).

6.4.4 Future Planning and Implementation

The Ministry plans to scale up the NGS reform by expanding the number of NGS schools in the coming years (CharVann, 2018). Funding from the World Bank will enable NGS to operate in 25 provinces and 100 schools by 2022. In addition to scaling up within Cambodia, there is also a possibility for the NGS model to be adopted within South-East Asia, as in 2018 the Ministry of Education of Laos PDR visited Cambodia to learn more about the NGS model (Bredenberg, 2018).

6.5 Theory of Change of New Generation Schools

The New Generation Schools reform's theory of change for teachers is: If the reform (1) creates a system and culture of high teacher professionalism and (2) provides high-quality professional development to teachers, then teachers will utilize innovative teaching and learning practices and develop students' twenty-first century skills.

6.5.1 System and Culture of Teacher Professionalism

New Generation Schools create a system and culture of teacher professionalism through the governance framework. There are four core principles of the NGS governance framework: operational autonomy, high professional standards for principals and teachers, a rationalized resource allocation framework and strict accountability requirements with a required annual accreditation process (Ministry of Education, 2018a, b).

High Professional Standards: First, NGS establish high professional standards for principals and teachers. The NGS reform is based on the notion that one of the core barriers to improving learning outcomes is rampant corruption at the school level. The reform targets this corruption by establishing an expectation of teacher professionalism, where school accreditation is based on adherence to the following criteria: “(1) private tutoring abolished and (2) practice of mandatory student purchases of teacher goods (e.g., study papers, cake, etc.) abolished.” An even higher expectation has been applied to principals, as “the role of the principal as a school leader is to set an example of high professionalism for teachers” (Ministry of Education, 2016a, b).

Both teachers and principals are compensated for adherence to high professional standards. There are two types of pay incentives. The first are fixed payments linked to the

agreement among NGS teachers to abolish private tutoring, which are set at a minimum of \$100/month for teachers and \$250/month for principals (Ministry of Education, 2016a, b). Teachers can also receive task-based payments for responsibilities such as leading clubs or organizing field trips, which vary depending on school needs and availability of resources (Ministry of Education, 2016a, b). The Ministry posits rewarding teachers and principals for maintaining a high standard of professionalism will reduce corruption (Ministry of Education, 2018a, b).

NGS teachers are selected primarily based on their alignment to the NGS vision and expectation of high professional standards. As Bredenberg (2018) noted, given the high accountability standards which differ starkly from the traditional Cambodian education system, NGS staff must be intrinsically motivated and dedicated to serving students well. They also should be willing to innovate and continually improve their instructional practices. For example, NGS teachers should be willing to incorporate ICT and constructivist pedagogy into their classroom.

Operational Autonomy: Next, NGS school-based staff, including principals and teachers, have nearly complete autonomy over their schools, provided they can justify how they will “promote innovation and increase educational quality” (Ministry of Education, 2018a, b). This includes autonomy over teacher recruitment, curriculum modifications, student–teacher ratios and use of education technology. NGS principals have a special allocation budget to fund innovative practices in teaching and learning, which specifically target STEM, ICT and critical thinking skills (Ministry of Education, 2018a, b).

Rationalized Resource Allocation: Third, NGS must demonstrate a rationalized resource allocation framework. NGS receive additional discretionary funding to achieve their learning goals. However, the rationalized resource allocation framework requires schools abolish all informal fees and demonstrate funds are being used effectively in support of the NGS goals, such as for “the delivery of high quality student services, teacher incentives that are linked to performance, and investment in school facilities” (Ministry of Education, 2016a, b). Overall, the governance framework is designed to provide autonomy to highly efficient and effective principals and teachers to innovate at the school level to improve the quality of instruction and student outcomes.

Accountability and Accreditation: Finally, the school-level autonomy and high professional standards are accompanied by strict accountability requirements for NGS accreditation. The NGS Policy Guidelines include 24 criteria that NGS must meet to maintain status and funding. To monitor NGS compliance with the accreditation criteria, the Ministry has created a national NGS Oversight Board. The Board is comprised of both representatives from the Ministry and non-state actors from the private sector. The Board is responsible for approving and monitoring the use of funds to ensure the additional investment in NGS is producing higher quality learning. The Board also oversees NGS accreditation visits and based on these evaluations makes recommendations for whether or not a NGS should maintain accreditation. If a NGS school loses its funding, it will no longer have access to Ministry resources and funds (Ministry of Education, 2018a, b). The strict accountability requirements

and robust annual accreditation process are designed to ensure NGS use their operational autonomy and additional resources to improve the quality of education in their schools.

6.5.2 High-Quality Professional Development

The NGS reform utilizes several modalities to provide comprehensive support and training to teachers to encourage innovations for twenty-first century teaching and learning.

Initial Training: The Ministry and KAPE are developing a specialized training institution for NGS teachers: the New Generation School Training Center (NGSTC). The institute will be affiliated with the national recruiting system and will directly recruit and train teachers for the NGS program. The NGSTC will provide an 8-month, 34-credit master's degree for young teachers. The curriculum at NGSTC will focus on academic leadership, professional ethics, mentoring and twenty-first century professional skills (Ministry of Education, 2018a, b). The program will use innovative advertising to recruit teachers and employ a selection process, which includes not only written examinations but also multiple rounds of interviews and evidence of community service (Ministry of Education, 2018a, b). This holistic application process will allow NGSTC to select candidates not only on their content and pedagogical expertise but also their intra- and interpersonal skills. Moreover, to ensure teachers have continued support when they leave the institute and enter the classroom, NGSTC is developing a software platform to enable virtual mentoring and provide access to success story podcasts. It will also use interactive voice response to track students' progress via real-time data (Ministry of Education, 2018a, b). Overall, the proposed teacher recruitment and training process at NGSTC is well structured to prepare teachers to work in New Generation Schools.

Career Planning: Once teachers are in their schools, all New Generation Schools provide ongoing instructional support to teachers via the Formative Teacher Support System. The system is centered on the practice of reflective teaching, which asks teachers to continually reflect both individually and in collaboration with colleagues and mentors on their practice (Ministry of Education, 2016a, b). There are seven key elements of the Formative Teacher Support System in a New Generation School: teacher profiles, study trips to other schools, professional learning communities, career path planning, individual conferencing, classroom observations and on-going in-service training opportunities. Teachers track their own professional growth and development by maintaining a professional profile, which includes documentation of their professional goals and accomplishments, including a CV, career path plan, special certificates or awards, and observation and evaluation forms.

Mentoring: All NGS schools have designated teacher mentors, who may be a vice-principal or KAPE staff member, to provide instructional support and feed-back to teachers (Ministry of Education, 2016a, b). Mentors partner with teachers to develop, progress and monitor their career path plan, conduct individual conferences at least twice annually to provide feedback on classroom observations or a team-taught lesson, and arrange study trips to other innovative schools so teachers can observe different pedagogy and practices (Ministry of Education, 2016a, b). Mentors partner with teachers to develop a career path plan, with

specific and measurable professional goals for the next 5 years. Teachers keep a weekly logbook of successes and challenges in progressing toward their goals.

In-service Training: All NGS teachers participate in-service training to learn about effective methodologies for developing critical and creative thinking skills. Some topics of NGS in-service teacher training include constructivist learning, problem-based learning, cooperative learning, differentiated instruction, teaching to promote critical thinking and using ICT in education (Ministry of Education, 2016a, b).

Professional Learning Communities: All NGS teachers participate in Professional Learning Communities (PLCs), where they not only collaborate and reflect on instructional practices but also reinforce the positive behavioral norms of teacher professionalism which are central to the NGS model. It is suggested that PLCs meet at least 2–3 times per month based on subject area or grade level to “share information, plan lessons and examinations together, and provide assistance to one another for special projects that are common to all teachers such as using educational software” (Ministry of Education, 2016a, b).

International Study Trips: New Generation School teachers also have the opportunity to visit and learn about other twenty-first century schools. For example, the Ministry organized a trip to Thailand in June 2018 for a group of NGS teachers, principals and board members to visit three innovative schools. The experience of inter- national comparative education allows teachers to identify ways they can enhance their own school to better achieve their goals for developing students’ twenty-first century competencies.

Principal Support: NGS principals are ultimately accountable for ensuring high- quality instruction, although they typically do not support teachers directly in an instructional capacity. NGS principals are aware of their role in monitoring the quality of instruction in their schools, as one NGS principal stated, “I have to make sure teachers [are] ready to transform all young learners with the knowledge and skills needed to function in a rapidly changing world by integrat[ing] modern and inter- active methods into their teaching” (Vicheaka, 2016). Principals may collaborate with teachers to define professional development goals, such as the use of ICT or constructivist pedagogy in their classrooms (Ministry of Education, 2016a, b). Some principals also conduct classroom observations, provide written and oral feedback, monitor teacher reflection journals and support professional learning communities (PLCs) (Vicheaka, 2016, Ministry of Education, 2016a, b). However, given their other management responsibilities, principals do not have time to build the instructional capacity of all teachers in their schools (Bredenberg, 2018).

Given the inputs above, NGS teachers are expected to achieve the following outcomes: (1) innovative teaching and learning practices and (2) support their students in developing twenty-first century skills.

1. Innovative Teaching and Learning Practices

The high level of operational autonomy and support provided to NGS is one of the key factors which distinguishes them from traditional Cambodian public schools. NGS are expected to use this autonomy and support to innovate to best serve the needs and interests of

students and the community. For example, NGS can adopt new curricula, increase hours of instruction in a particular subject, extend teaching hours and reduce class sizes. They also receive additional resources which can be used to purchase new technology or curriculum. Overall, this approach is aligned with the theory of school-based management that those closest to students know best how to allocate resources to meet their needs. The two focus areas for innovation at NGS are curriculum and instruction and technology and facilities.

Curriculum and Instruction: The NGS reform anticipates principals and teachers will use the autonomy and support they receive to deliver high-quality, innovative twenty-first century curriculum and instruction. First, NGS teachers are able to adopt new curricula outside the national framework which is aligned to twenty-first century learning standards. Some of the possible instructional innovations articulated in the NGS Policy Guidelines include “enhanced curricula (e.g., intensive learning in the STEM subjects) ... and (iv) differentiated learning channels to accommodate students’ strengths and interests” (Ministry of Education, 2018a, b). One example of an instructional innovation took place in 2018, when several NGS senior English teachers began implementing the Extensive Reading Program, which is designed to supplement classroom English instruction, improve English fluency, and prepare students for standardized English tests. The NGS secondary schools are the first in Cambodia to adopt this innovative instructional technique (Ministry of Education, 2018a, b). NGS also have the option to reduce class sizes to increase individualized learning. The increased student instructional hours (36 hours for primary, 40 hours for secondary) can be used for special subject themes such as STEM or foreign language (Ministry of Education, 2018a, b). This autonomy to innovate with curriculum and instruction is designed to develop students’ twenty-first century skills.

Technology and Facilities: NGS schools are also encouraged to innovate with technology and facilities to develop a modern, efficient learning environment. This means ensuring access to a twenty-first century library, science and ICT labs, and sports and playground facilities. As the Ministry expressed: “the use of technology will be a key element in New Generation Schools that includes not only access to hardware but also the introduction of new educational software that will enhance teaching, learning, and assessment (e.g., Literatu, 3D Classroom, etc.)” (Ministry of Education, 2018a, b).

2. Twenty-First Century Skills

The New Generation Schools reform aims to support students in developing twenty-first century competencies, in order to prepare them to contribute productively to the workforce. NGS’s specific emphasis on STEM and ICT skills is a response to these growing industries in Cambodia and across South-East Asia. As Minister of Education Dr. Hang Chuon Naron explained, “Because we are in the 21st century, technology develops very fast. I think, to make Cambodia advance to the status of a developed country with an increased income, we need to create new industry, we must focus our students’ training in STEM” (Sacker, 2017). The Ministry also emphasizes the importance of critical thinking in preparing students for future employment, as a recent survey in Cambodia identified analytical thinking and decision-

making as the skills most desired by employers for skilled and semi-skilled work (Bredenberg, 2018). It is this combination of cognitive processes and explicit content knowledge in STEM and ICT that the Ministry believes will prepare students for future success in the workforce.

The NGS place a strong emphasis on cognitive competencies, with a particular focus on content knowledge of STEM and ICT and critical thinking skills. While the NGS reform aims to improve the overall quality of education, the Ministry has expressed an explicit goal for NGS is to improve STEM instruction, given historically more than half of students have not passed the national 12th grade Bac II examination in Mathematics, Chemistry and Biology (Bredenberg, 2018). This priority is also reflected in the NGS Operating Guidelines for accreditation, which require all schools to have a twenty-first century library, ICT lab services and science lab services (Ministry of Education, 2018a, b). The importance of having a “modern and efficient learning environment” to facilitate the development of STEM and ICT cognitive competencies is an important aspect of the NGS model, with special funding allocated for upgrades of libraries, computer labs and other common spaces in NGS (Ministry of Education, 2016a, b).

The goals for NGSs also emphasize ICT literacy for both students and teachers. Teachers are expected to have a high degree of ICT literacy and are evaluated based on their ability to integrate ICT into their classrooms. Students are expected to utilize their school’s abundant ICT resources, both as a means to learn and also to develop technical ICT skills useful for future employment (Ministry of Education, 2018a, b). For example, in the upcoming school year, NGS will partner with Code.org to offer two hours per week of coding instructions to students (Ministry of Education, 2018a, b).

Besides the emphasis on STEM and ICT, the Ministry also requires students to develop other cognitive competencies such as critical thinking and problem-solving abilities. One of the key target outcome indicators defined by the Ministry for NGS is “critical thinking scores among students show a statistically significant improvement from baseline scores by the end of year 3” (Ministry of Education, 2018a, b). In order to achieve this goal, NGS utilizes problem-based learning and constructivist teaching methods. Problem-based learning is an inquiry-based, student-driven approach where students learn through discussion of open-ended, real-world problems. Similarly, constructive learning is as an active process of contextualizing information and constructing meaning based on one’s own life experiences (Ministry of Education, 2016a, b). Both approaches require students to utilize critical thinking skills to analyze relevant real-world problems. The Ministry emphasizes the importance of critical thinking in preparing students for future employment, as a recent survey in Cambodia identified analytical thinking and decision-making as the skills most desired by employers for skilled and semi-skilled work (Bredenberg, 2018).

While goals for inter- and intrapersonal competencies are not explicit in the program design, the NGS reform provides opportunities for students to develop these twenty-first century competencies. For example, the use of problem-based pedagogy allows students to develop collaboration and leadership skills. Students also have additional opportunities for interpersonal development outside the classroom through participation in sports and student organizations. Education Minister Dr. Naron also includes global citizenship as one of the goals

of the reform in stating, “They [students] should also have a good attitude...to help them become good national citizens, but also good global citizens. [Students need] to know about global warming and terrorism, and how to address these issues” (Sacker, 2017). NGS also utilizes inquiry-based pedagogy to foster intellectual curiosity and self-directed learning. Ariel Rozenblum, ICT in Education Advisor at KAPE, described the power of this self-directed learning, “We realize that we only need to open doors, we don’t have to do more than that. Once we open the doors, the students have a lot of ideas, a lot of drive by themselves” (Cheyenne, 2017). Thus, the development of students’ inter- and intrapersonal competencies is embedded in NGS pedagogy; however, these competencies are not explicitly defined, monitored and assessed in the NGS accreditation criteria.

6.5.3 Risks and Assumptions

There are a few major risks and assumptions with the NGS reform theory of change. The first assumption is principals and teachers have the expertise required to make decisions with resources which will positively impact teaching and learning. This assumption is a current risk because, while there is a robust system for teacher professional development, there is no standardized process for principal selection and training. This has not yet been a significant challenge, given the small scale of the reform and close involvement of KAPE staff, but it will become a critical risk as the program expands.

Beyond having the knowledge and skill, school-based staff must also be highly motivated to maintain support for the NGS vision and adhere to the accountability framework in the context of a larger system that is highly corrupt. As KAPE describes, “A key assumption...is that teachers are truly dedicated to being a good teacher and are not distracted by unprofessional activities that seek to exploit students. If this assumption does not hold at a New Generation School, it is likely that the present system will not function effectively” (Ministry of Education, 2016a, b). For example, teachers must be willing to take risks with their instruction and deliver lessons that are engaging, relevant and personalized to the needs of all learners. Similarly, principals must effectively manage resources in their schools to ensure the environment is conducive to twenty-first century learning.

Finally, there are two critical assumptions about the link between twenty-first century skill development and workforce readiness. First, graduates of NGS must have employment options that match the twenty-first century skill set acquired in NGS. The STEM-focused curriculum assumes there are more jobs available in the STEM field. Second, there is an assumption that NGS graduates will utilize the skills they learn in NGS to contribute to the Cambodian workforce and economic growth.

6.6 Results of New Generation Schools Reform

With three full years of implementation, current evidence suggests that the New Generation School reform has been successful in achieving its desired outputs and outcomes, however, ongoing monitoring and evaluation is needed.

6.6.1 Accreditation Results

Available evidence suggests the NGS governance framework and school-level professional support are in place and being implemented with fidelity. In 2017, Sisovath High School and Hun Sen Kampong High School were evaluated to receive full NGS accreditation status and were found to be highly compliant with NGS accreditation criteria. Both schools achieved 100% of the required criteria, while Hun Sen Kampong achieved 90% of preferred criteria and Sisovath achieved 70% (Ministry of Education, 2017). Hun Sen Kampong fully achieved criteria for teacher career path planning and teacher support, while Sisovath fully achieved criteria for library, ICT and science lab services. The Ministry was satisfied with these results, noting: “The successful piloting of NGS Accreditation Criteria marks an important milestone for NGS educational reform because it shows the willingness of the educational system to rigorously apply standards and the motivation of schools to comply” (Ministry of Education, 2017).

Since 2017, the Ministry has added four additional accreditation requirements for New Generation Schools and plans to conduct 12 accreditation visits in 2018 and 2019. Given the high level of autonomy and investment in teacher development within the NGS framework, additional data should be collected to assess changes in teacher practice, such as from mentor coaching logs or classroom observations. The results of these evaluations will provide further insight into the fidelity of implementation of the NGS model.

6.6.2 Teacher Perspectives

NGS teachers report that the use of ICT has modernized the curriculum and enabled them to be more creative and interdisciplinary. Keo Chanith, a physics teacher at NGS, expressed the use of classroom multimedia as a great method for developing students’ cognitive skills: “the administration here focuses on teaching students critical thinking. We want them to expand on their ideas and create new things” (Sacker, 2017). Puthy, a mathematics teacher, also reflected on the benefits of cross-disciplinary practices at NGS, where she has learned to incorporate English and ICT into her mathematics lessons (Sacker, 2017).

6.6.3 Outcome Results

Students in two NGS with grade 12 cohorts outperformed the national average and non-NGS schools in the same vicinity on the 2018 Bac II Examination. While the national passing rate for the 2018 Bac II examination was 67%, 89% of Sisovath High NGS students and 75% of Hun Sen Kampong passed the Bac II exam. Both schools also significantly outperformed non-NGS schools in their vicinity (KAPE, 2018). However, when reviewing these results, it is critical to note that no baseline test data was collected and student admission to NGS is partially based on merit. Therefore, the outperformance could result from selection bias instead of the positive impact of the NGS program. Nevertheless, KAPE Advisor Kurt Bredenberg noted

when NGS began in 2014 it did not have a student entrance exam requirement, and thus students tended to come from poorer and less advantaged backgrounds than later cohorts. Further demographic subgroup analysis of Bac II results indicates poorer students and students with longer exposure to NGS tended to perform better than poorer students who did not attend NGS (Ministry of Education, 2017). Beyond test scores, there is also evidence of a change in the culture and attitude of student learning, as Education Minister Dr. Naron shared, “After one year of visiting Sisovath, I could see that the students had changed as a result of the altered teaching method. I think they have curiosity, they want to learn, and they want to explore, to have dreams” (Sacker, 2017).

6.7 Lessons Learned from NGS Reform

The NGS reform provides valuable insights for practitioners, researchers, policy-makers and funders looking to enhance teacher capabilities to deliver twenty-first century instruction through a combination of high professional standards and robust professional development. We have identified a few key lessons from NGS based on the key themes for supporting teacher and leader development identified by Reimers and Chung (2018) in *Preparing Teachers to Education Whole Students*.

Lesson #1: Professional development is socially situated, responds to current needs of teachers and uses multiple modalities to provide sustained, extensive opportunities for teachers to build capacities.

The NGS teacher formative support system is well aligned with best practices for teacher professional development. First, it is grounded in a model of reflective teaching and continuous improvement, where teachers plan and direct their own professional learning and development over multiple years with the support of mentors. The NGS model also utilizes a variety of modalities for teacher professional development, including an initial pre-service training, in-service mentoring and targeted training sessions, PLCs and international study trips.

The NGS approach to teacher development is also socially situated in its attempt to counteract the broader context of systemic corruption by promoting a culture of high standards for professionalism. The NGS governance framework requires teachers adhere to strict accountability requirements by abolishing the common practice of private tutoring. This can be especially challenging in the “school in a school” model, such as at Sisovath High School, where NGS teachers work in the same building as teachers without the same strict professional standards. Given this broader social context, NGS leaders carefully select the most highly motivated teachers and provide them with robust professional development. While initial evidence suggests NGS teachers are aligned with the goals of the reform and compliant with anti-corruption requirements, this will be an important area for future monitoring as the reform scales.

Lesson #2: The teacher development programs cover a blend of capabilities, from a broad focus on helping students develop capabilities to a highly granular identification of

specific pedagogies and instructional practices that can help students gain skills and competencies.

As Reimers and Chung (2018) note, effective teacher development programs “aim to develop the autonomy and agency of teachers as professionals, their capacity for independent learning, their desire for continuous learning, and increased effectiveness, and their intrinsic motivation to strive for excellent teaching” (Reimers and Chung, 2018, p. 31).

The NGS teacher mentoring program is built on the philosophy of reflective teaching and includes feedback cycles which embed the practice of continuous professional learning. Contrary to traditional “check and control” approaches, teachers are provided with opportunities to reflect on their own teaching. While teachers are the ones who are directly engaged in their own growth and assessments, mentors can also provide external feedback. Teachers are supported in setting professional goals which represent a shift from the traditional role of the Cambodian teacher, such as the utilization of ICT-based instruction. For example, through the country’s first Extensive Reading Program, English teachers at NGS are not only expected to develop instructional expertise, but also the ability to monitor a digital technology platform.

The NGS teacher development model also supports teachers to be more creative and interdisciplinary through student-centered pedagogy and instruction. NGS teachers are able to incorporate cross-disciplinary practices into their own classrooms and develop competencies beyond subject-matter knowledge. The feedback from current NGS teachers reaffirms the need to modernize the curriculum to more intentionally focus on twenty-first century competencies, as it is a learning process not only for students but also teachers.

Although NGS allows teachers to develop and educate a broad set of capabilities, NGS teachers still face a dilemma on whether to “teach to think” or “teach to test”. To prepare students for the Bac II, NGS teachers may have to compromise some of their innovative instructional time for exam preparation. To find the middle ground, NGS provides a special budget to assist students with Bac II preparation from grades

7 to 11 (Ministry of Education, 2017). This includes funding for organizing mock exams and incentives for teachers to help prepare students for the exam.

Lesson #3: All New Generation Schools model a learning orientation.

The NGS model represents a significant departure from the traditional Cambodian education system in both the goals and approach to teaching and learning. As the reform has scaled, the Ministry and KAPE have demonstrated a learning orientation, collecting detailed information on school-level implementation, such as through the accreditation visits, to inform the future direction of the reform. This has allowed the reform to evolve and continuously improve, for example, with the recent updates to the accreditation criteria and expansion to include primary schools. The learning orientation that underlies the teacher formative support framework is also embodied by the leaders at all levels of the reform.

The NGS reform also offers a few unique insights into effective twenty-first century schools and teacher development.

Lesson #4: The NGS governance framework includes a thoughtful balance of autonomy, accountability and support for school-based staff.

The combination of high autonomy, accountability and teacher support is the core strength of the NGS reform. First, operational autonomy allows school-based staff to take direct action to improve their school. This autonomy without excessive bureaucracy allows schools to respond quickly to needs in their schools to have a more immediate impact on students. This autonomy is coupled with the strong NGS accountability system which directly targets corruption—one of the systematic causes of low school performance in Cambodia. Finally, school-based staff receives robust and ongoing support to make the most effective use of their autonomy.

Lesson #5: The success of the reform is in large part based on strong political support and public–private partnerships.

A strong public–private partnership and political support have been indispensable for ensuring the vision and plan for the reform are implemented. NGS maintains strong backing from the Prime Minister and Minister of Education, Youth, and Sports, which has been critical for consistency in funding and political support. The strong public–private partnership between KAPE and the Ministry has ensured coherence in the design and implementation of the reform. Further, as an implementing organization, KAPE brings significant technical expertise in school-based management to provide direct support to principals and teachers. This public–private partnership has proven to be a great asset for the NGS reform.

6.8 Conclusion

Cambodia’s New Generation Schools reform is a promising model combining high professional standards and comprehensive professional development to prepare teachers to strengthen students’ twenty-first century skills in STEM, ICT and critical thinking. The reform is unique in that it provides significant autonomy and support to school-based staff in exchange for high accountability for results. Current evidence suggests the reform is well-aligned to its established goals. Continued study of the NGS reform will undoubtedly yield valuable insights for policymakers and educators aiming to improve twenty-first century teaching and learning around the world.

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Melissa Donaher is an Ed.M. graduate of the International Education Policy program at the Harvard Graduate School of Education dedicated to improving the access, quality and relevance of education in the developing world. She currently works at Save the Children supporting research and evaluation of international youth workforce readiness programs. She previously worked as an English teacher for WorldTeach China, an education consultant for District Management Group and research assistant at the Harvard Graduate School of Education EASEL Lab.

Nuoya Wu is an Ed.M. graduate of the International Education Policy program at the Harvard Graduate School of Education. She is an alumna of United World College and Macalester College, and previously worked as a junior program manager at AidData, a research and innovation lab at the College of William & Mary and a content developer for data science professional certificate program at EdX. She currently works for the Human Capital Project at the World Bank.

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CHAPTER 7

The Progression of Reform in Cambodia's Secondary Education Sector: Can Cambodia Maintain the Momentum of Reforms?

By Kurt BREDENBERG

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7.1: Introduction

This article recounts the development strategies employed by the Cambodian Government and its development partners to raise educational quality and efficiency in the secondary education sector during the period from 1999 to 2020. The article describes two reform cycles in this regard, where their focus lies, and how they fared in terms of success rates. The first cycle, from 2000 to 2014, focused primarily on access issues. Though achieving some success, educational reforms had stalled within a decade and growth in net enrolment rates had reached a plateau. This stalling out process may be explained by structural changes within the education system, as well as by an acceleration of social and economic changes in Cambodian society. The second reform cycle, from 2014 to 2019, was catalysed by the 2013 national election and focused more on educational quality and school governance issues. It culminated in a radical experiment to promote charter schools known as New Generation Schools.

7.2 The Past as Prologue

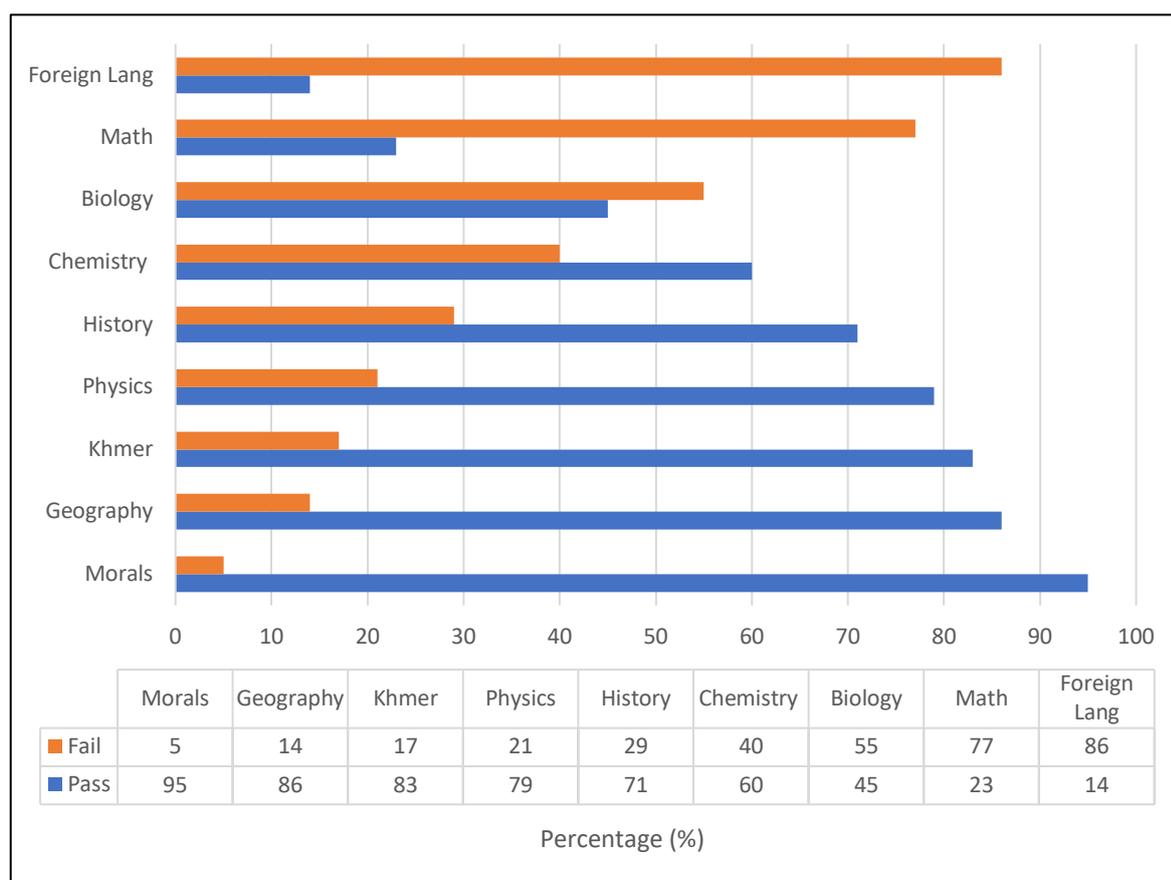
Throughout most of the 1990s, development aid for education was singularly focused on primary education, given the huge number of students enrolled in this sector and the significant needs implied across multiple areas, including infrastructure, teacher training, and others. Secondary education has historically been the poor cousin, with national resource allocations to secondary education accounting for only 11.2% of the entire education budget in 2001, compared with 74.4% for primary education (UNESCO, 2008). To be sure, there were 2.2 million children enrolled at the primary level at the beginning of the century, against only 0.34 million registered at the lower-secondary school level (Education Management & Information System [EMIS], 2000-2019). Nevertheless, the disparity in resourcing was high. In 2005, a re-ordering of investment priorities began to take shape with the advent of the first international aid project focused on secondary education, funded by the World Bank.¹¹ This initiative was followed by several other large development projects funded by both multi- and bilateral donors, including the Asian Development Bank (ADB), USAID, and Belgian Aid.

The need for expanded investment in secondary education was first highlighted by policy changes in 1996 that subsumed the lower-secondary education cycle (i.e., grades 7 to 9) within the parameters of what is known as 'basic education', free access to which is guaranteed by Cambodia's constitution. Many factors figured in the calculus to bring about this policy change, including the desire to catch up with Cambodia's neighbours, as well as considerable empirical evidence that individuals who completed nine years of basic education had improved chances

¹¹ Otherwise known as the Cambodia Education Sector Support Project, or CESSP. Although this project also included several subcomponents focused on primary education and national capacity-building, the lion's share of funding was allocated to lower-secondary education with funding levels fixed at \$19 million in U.S. dollars in grant funds and \$8 million in U.S. dollars in credits.

for better health, smaller families, and higher income per capita (UNICEF, 1996). Nevertheless, as the new century began, the net enrolment rate at the lower-secondary school level was reported to be only 14%, compared with 93% at the primary level (EMIS, 2002). This sharp difference highlighted several unique needs in the secondary sector, including the scarcity of schools, which extended the daily time required to get to and from school and amplified school distance as an important impediment to participation. When this disadvantage was added to opportunity and direct educational costs, as well as structural differences in staffing that made it more challenging to recruit, post, and keep teachers at rural secondary schools, even more so in remote locations, it is hardly surprising that the lower secondary enrolment rate was so low.

Figure 1: Pass and Failure Rates on Bac II Exam, 2019



As the 21st century unfolded, there was an increasing focus on the need for heightened investment in Cambodia's secondary education sector. Indeed, the share of public funding for secondary education has now increased significantly since that time. This situation stems from several reasons beyond those mentioned above, perhaps the foremost of which is the observation that Cambodia's youth population has been exploding. Indeed, Cambodia has one of the most youthful populations in Southeast Asia, with an estimated 59% of its population under 30 years old and 28% between the ages of 15 and 29 (Population Pyramid.net, 2019). Despite this preponderance of youthful citizens, fewer than 40% of Cambodian adolescents have been enrolling in the secondary education sector in recent decades, and only about 6% have been enrolling in technical and vocational training institutions (The World Bank [WB], 2012; Kampuchea Action to Promote Education - Save the Children International [KAPE-SCI], 2014). These numbers suggest that

almost two-thirds of Cambodia's youth population transitions into the country's workforce at a very early age and with little in the way of the skills preparation needed for a capable workforce. This situation largely explains why employers identify 'analytical' and 'decision-making' skills as among the most wanting among Cambodian workers in skilled and semi-skilled positions (Cambodian Federation of Employers & Business Associations [CAMFEBA], 2008). As Cambodia positions itself to better compete with its neighbours under conditions of increased economic integration, these deficiencies will most certainly become more pronounced.

Cambodia's performance in science, technology, engineering and mathematics (STEM) subjects poses especially serious challenges for the nation's planners, with implications for Cambodia's ability to compete effectively in both the regional and global economy. Observers have noted that only about 3.87% of Cambodians study science subjects at tertiary level (WB, 2018), which compares with the OECD average of 27% (OECD, 2017). The problem is highlighted best by the low scores that Cambodian students register on the National Leaving Examination at the end of grade 12, where mathematics, chemistry, and biology evinced failure rates of about 40% or more in 2019 (see Figure 1) (Department of Examinations, 2019). Though slightly improved from even lower scores earlier in the decade, these rates suggest an urgent need for enhanced investment in STEM education at all levels, but particularly at the secondary level where basic STEM skills are formed.

7.3: Early Development Strategies

A growing consensus emerged in the Cambodian Government and among its development partners in the early 2000s about the need to increase investment in the secondary education sector. The investments that subsequently took place were guided by lessons learned during the 1990s when investment imbalances within the primary sector led to stagnation in school participation and flow rates (Bredenberg & Sao, 2003). In particular, there had been an overemphasis on *supply-side* investments focused heavily on inputs such as infrastructure, teacher education, and policy-driven changes (e.g. certifying primary school teachers to teach at secondary school level), with less attention given to the need for *demand-side* investments.

The First Education Reform Cycle, which began in 2000, refocused investment in the education system to include 'pro-poor' strategies and demand-side interventions, including the provision of scholarships, the abolition of school fees, and the initiation of school breakfast programs. Demand-side strategies such as these are distinguished by their focus on the stimulation of educational demand among service recipients. The success of these strategies, which had dramatically impacted school participation rates among primary school-age children, was not lost on policymakers when designing investment programs for the secondary education sector (Education Sector Support Secretariat [ESSS], 2002). Many of the investment programs that got underway, therefore, included demand-side measures to complement what continued to be significant investments in infrastructure and other forms of supply-side support. The provision of scholarships, for example, was favoured, often focusing on achieving improved participation rates in secondary education among high-risk demographic groups, especially girls and minority groups.

Early programming in the secondary education sector also focused on several non-capital components that included investments in school governance, curricular reforms to increase educational relevance (especially life skills education) and expanding the holistic approach to development expounded in MoEYS' Child-Friendly School Policy to lower-secondary schools. Child-Friendly School programming is a global movement supported by UNICEF and others

that is designed to refocus educational investment from a uni-dimensional emphasis on school efficiency to a more rights-based approach for children that takes in multiple areas of concern across five key dimensions (access, learning environments, health & safety, gender, and stakeholder engagement) (Bredenberg, 2009).¹² This policy change, though many years in the making, helped to restructure development aid for both the primary and secondary education sectors into a multi-dimensional framework that focused not only on access issues but also on educational quality, community engagement, and school governance. It was particularly attractive to child rights-based agencies such as UNICEF and Save the Children because it was believed that formulating interventions in this way helped refocus development efforts away from the economic efficiency models of educational development popular with the development banks.

For its part, the Ministry of Education, Youth and Sport (MoEYS) also sought to accommodate expanded access to secondary education by increasing the number of teachers certified to teach at the secondary school level, converting primary schools into basic education schools by allowing them to add grades 7 to 9 to their programs, and providing free textbooks to all students engaged in study at the lower-secondary school level. Restructuring the grade make-up of primary schools was particularly effective at reducing distance as an enrolment impediment. These efforts complemented significant investment in infrastructure to expand the number of secondary schools in the countryside, thereby reducing travel time between home and school and generally making access easier.

7.4: Early Successes under the First Educational Reform Cycle (2000 to 2009)

The more balanced investment approach for secondary education, comprised of both supply-side and demand-side strategies, produced some early successes, particularly in the area of school access (see Table 1). For example, supply-side interventions such as infrastructure investments over the ten years from 2005 to 2015 increased the number of secondary schools nationally by 52%. This expansion helped to address a distance factor widely seen to be one of the significant impediments to secondary school enrolment (KAPE-SCI, 2014). Most notably in this regard, net enrolment rates increased dramatically from the high teens in 2000 to as high as 35% by 2010. The gender gap in secondary school enrolment favouring males also disappeared, and then reversed, at both the lower-secondary and upper-secondary school levels. This outcome was very likely due to the profusion of Girls' Scholarship Programs being supported by large development partners, such as the World Bank and ADB, as well as by many smaller NGOs. Several studies have empirically validated the effectiveness of such programs over the years (Collins, 2005; Filmer & Schady, 2006).

The impact on school access was also demonstrated by a steep decline in overage enrolment so that by 2015 only about a quarter of the students enrolled at secondary school level were overage, compared with a rate of more than 40% in the previous decade. The significance of declines in overage enrolment cannot be understated because of the link between age and the opportunity costs associated with secondary education. The older a student becomes, the more likely he or she will forego income that could be earned in the labour market. With a youth unemployment rate of 1.1%, that is, among the lowest in Southeast Asia (WB, 2020a), Cambodia exhibits a very high demand for youthful labour. As a result, opportunity costs for education in Cambodia are generally recognized as one of the leading factors that depress enrolment at secondary school level (Bredenberg & Sao, 2003; United Nations Development

¹² Cambodia has actually developed its Child-Friendly School Policy to include a 'sixth' dimension that focuses on 'School Enabling Environments,' which is a code word for school governance issues (cf. MoEYS, 2008).

Table 1: Snapshot of Change in Secondary Education in Cambodia, 2005, 2015

| Indicator | 2005 | 2015 |
|--|-------------|-------------|
| Total Enrolment | | |
| Lower Secondary | 588,333 | 558,464 |
| Upper Secondary | 204,925 | 266,606 |
| Number of Secondary Schools | 1,129 | 1,714 |
| Net Enrolment Rate | | |
| Lower Secondary | 33.7 | --* |
| Upper Secondary | 12.5 | --* |
| Gross Enrolment Rate | | |
| Lower Secondary | 60.0 | 53.8 |
| Upper Secondary | 21.2 | 24.3 |
| Student Dropout | | |
| Lower Secondary | 22.8 | 19.2 |
| Upper Secondary | 15.9 | 23.8 |
| Gender Parity Index (Enrolment) | | |
| Lower Secondary | 0.81 | 1.05 |
| Upper Secondary | 0.63 | 1.01 |
| Transition Rate | | |
| Lower Secondary | 78.7 | 82.1 |
| Upper Secondary | 66.2 | 72.4 |
| Overage Enrolment | | |
| Lower Secondary | 43.9 | 27.7 |
| Upper Secondary | 41.1 | 23.3 |
| Student Repetition Rates | | |
| Lower Secondary | 2.5 | 2.2 |
| Upper Secondary | 3.3 | 3.2 |
| Pupil-Teacher Ratio | 31.2 | 20.2 |
| % MoEYS Budget Allocation | 11.2%** | 44.1%*** |

*MoEYS no longer reports on NER for secondary education; **2001; ***2014

Source: EMIS, 2005, 2015; World Bank, 2014

Programme [UNDP], 2009; KAPE-SCI, 2014). Thus, by decreasing overage enrolment, the Government was, to some extent, also able to minimize the impact of opportunity costs on school retention. Opportunity costs continue, though, to be one of the leading causes that depress participation rates in the sector. In this respect, opportunity costs have been cited by as many as 23% of secondary school students as the leading cause of their decision to leave school (KAPE-SCI, 2014).

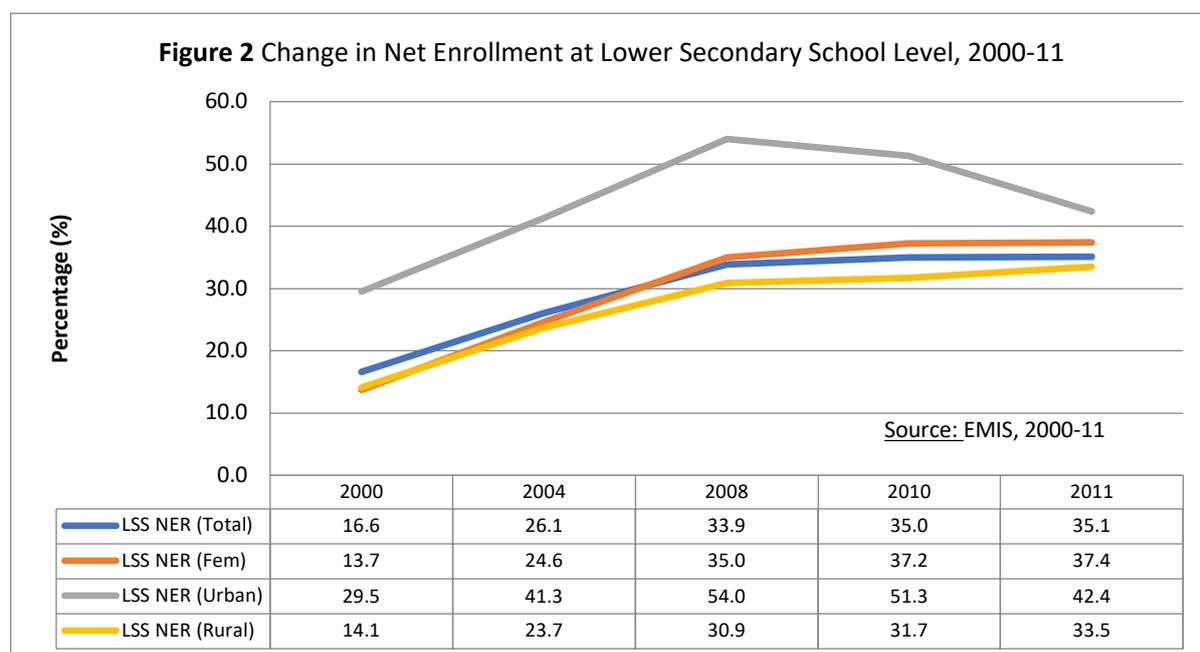
Transition rates and enrolment were areas of mixed success over the period of the First Educational Reform Cycle. As primary school enrolment expanded because of the demand-side reforms described earlier, there were dire predictions that transition rates would plummet if the capacity of the secondary school sector was not expanded dramatically (Bredenberg & Sao, 2003). Happily, these predictions did not materialize due to the rapid expansion in sector capacity; thus, the education system was able to maintain relatively high transition rates in the 70-to-80% range at the lower-secondary and upper-secondary levels, with some modest improvement by several percentage points in these rates over the decade up to 2015. On the other hand, overall enrolment declined slightly at the lower-secondary school level, even though it increased significantly at the upper-secondary level. Enrolment declines in this regard occurred despite massive investments in infrastructure that, as noted earlier, had increased the number of secondary schools dramatically. Investments in infrastructure and additional staffing likely contributed to a major improvement between 2005 and 2015 in the pupil-teacher ratio.

As a result of education reforms initiated at the start of the century, Cambodia's secondary education sector was much different by 2015 from how it was in the early 2000s. Secondary

schools were more ubiquitous, and net enrolment was much higher than at any other time previously. The secondary school population had also become much more diverse, from both a gender and a socio-economic status perspective (Education Sector Support Secretariat [ESSS], 2002; KAPE-SCI, 2013). The enrolment growth was highest among youth in the lower-income quintiles of the population and among girls. These successes were attributable mainly to the systematic application of demand-side interventions that sought to stimulate educational demand.

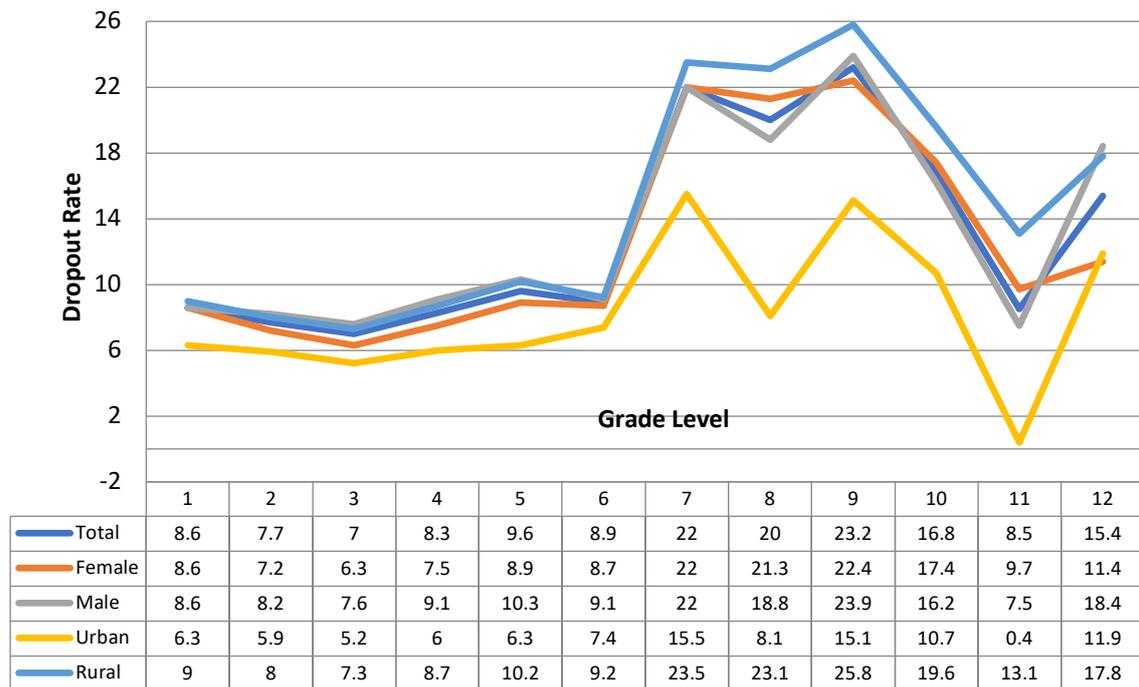
7.5: Stalled Progress and the Limits of Reform (2010-13)

As often happens, the vigour that drives a reform movement can tend to wane as enthusiasm diminishes and high-level leadership changes occur. The First Educational Reform Cycle took such a trajectory so that by 2010 the impact of the reforms had begun to stall. Major improvements in participation rates had run out of steam. In this respect, increases in national net enrolment rates at the lower-secondary level peaked in the range from 35% to 39% and were unable to break through a ceiling of 40%, as had been hoped. Indeed, MoEYS had expected to achieve a 47% net enrolment rate by 2014 (MoEYS, 2014). Not only did enrolment rates reach a plateau across all demographic groupings, but they also began a steep decline among urban populations (see Figure 2). This trend was particularly true of Phnom Penh, suggesting the emergence of an urban-rural enrolment gap similar to the one that used to exist for gender. These enrolment trends spoke to the impact of the rapid proliferation of private schools in urban areas, which is an issue dealt with in more detail later in this chapter.



One of the performance targets relating to school access where educational reform had the least impact concerned school retention. There were spikes in dropout rates that were especially pronounced in the secondary school sector. Dropout rates appeared to peak most at the grade 7, 9, and 12 levels, each representing a key transition point, whether between primary and lower-secondary or between lower-secondary and upper-secondary (see Figure 3). High rates of dropout across the grade 7 to 9 levels hovered at about 20% for the better part of a decade.

Figure 3 Change in Dropout Rate by Grade Level, 2010/11



Source: EMIS 2013

Indeed, there was hardly any change in the magnitude of dropout within the sector during the period from 2005 to 2015, and dropout rates had actually increased substantially at the upper-secondary level. Even by 2019, dropout rates in the secondary education sector continued to be in the range of 16% to 17% (EMIS, 2019a). This situation is surprising given the large investments made in scholarship support and expanded secondary school capacity.

Various factors help to account for the stagnation in educational access and retention rates towards the end of the First Educational Reform Cycle. These factors relate mainly to the changing economic landscape in Cambodia. In this respect, the rapid proliferation of factories based in the countryside, as well as a plantation-based economy focused on sugar cane, cassava, red corn, and rubber, seem to be much more of a problem now than in years past, displacing the traditional subsistence rice farming economy that had contributed to more seasonal patterns of dropout (ADB, 2012). Traditional dropout patterns used to result in students leaving school after the Khmer New Year holiday, when the rice-planting season began, only to re-enrol again during the following school year. However, with the draw of factory and plantation-based employment, which tends to be year-round, dropout now seems less seasonal than in the past, with students leaving school and then not returning. These new plantations are not small family-run businesses of the traditional variety, but rather large enterprises run by huge agro-businesses.

As noted earlier, opportunity costs have always been a significant factor in accounting for high dropout rates. It now appears that recent changes in the Cambodian economy, such as opportunities for employment in factories and the expansion of the plantation economy, are greatly amplifying the impact of opportunity costs in depressing school participation rates. The impact is also being intensified by the willingness of young people to migrate. Studies of migration in Cambodia have noted that 70% of migrants are under 30 and that migratory trends are increasingly characterized by rural-to-rural migration, as opposed to the rural-to-urban migratory patterns of previous decades (Supreme National Economic Council [SNEC], 2008;

Ministry of Planning [MoP], 2012). Such trends confirm the increased attraction of employment opportunities in an expanding planation-based economy, not only in Cambodia but also in nearby countries, especially Thailand.

Another important social change that has undermined public school secondary enrolment rates in urban areas concerns the proliferation of private schools. Historically, the private school sector in Cambodia has provided educational services to only a very small fraction of the population, mainly the wealthiest and most privileged fraction of Cambodian society. However, a growing middle class in Cambodia's urban areas, combined with mounting dissatisfaction with the public school system at both the primary and secondary levels, has recently resulted in an explosion in the number of private schools. According to official statistics, there are now 225 private secondary schools nationwide, enrolling 47,153 students, and serving about 21.7% of the urban secondary school population (EMIS, 2019a & b). The vast majority of these students are located in Phnom Penh, where there are 102 private secondary schools, or 45% of the total, attesting to the mostly urban nature of the private school phenomenon. The emergence of a vibrant private school sector offering educational services to a large segment of the urban population is an unprecedented development in Cambodia's education system. The public education system, with its weakening monopoly on the provision of education in Cambodia, has struggled to deal with the phenomenon of service alternatives in the private sector, often even denying its very existence or increasing scale.

The impact of competition for students between public and private schools in Cambodia has not been well documented. Still, its effect on public school enrolment has been showing up in dramatic declines in national net enrolment rates in urban areas. MoEYS started the collection of statistical data on private schools in 2015, which testifies to the observation that these institutions are no longer just serving a small fraction of the population but rather a growing segment of Cambodian families, especially in urban areas. Some studies have found that enrolment shifts in Phnom Penh have been dramatic, especially in the wealthier districts of the capital. In this respect, about 27.6% of the capital's secondary school students are now enrolled in the private sector (EMIS, 2019a & b). In some districts, such as Khan 7 Makara, this proportion has been reported to approach or even exceed 50% (KAPE-SCI, 2013). A sampling of some of the largest secondary schools in Phnom Penh tells the story about trends in enrolment, with dramatic declines of 50% or more over the last 15 years. Enrolment levels at Preah Sisovath HS, Cambodia's oldest public school, have dropped by 45% since 2005.¹³ According to school officials, most students leaving public schools are from the upper-income quintiles. Such trends are of great concern because, if left unaddressed, they will eventually reduce the public schools to the preserve of the urban poor, thereby greatly exacerbating class differences in Cambodian society.

Public schools are at a significant disadvantage with respect to the private sector because of the increasingly common view that there is little or no accountability for the former's performance (Bredenberg, 2008). Private schools, on the other hand, are wedded to a more rationalized resource allocation system that demands high standards of performance from school administrators and teachers. Private schools that do not perform well face insolvency, whereas public schools never close, no matter how low their standards of performance. Anecdotal evidence suggests that there is indeed a high rate of closure among Phnom Penh's private schools, which in turn suggests a fierce competition for students. Because private schools generally recruit teachers from the public sector, the conventional wisdom is that there is little difference in educational quality between the public and private sectors, especially among city

¹³ Personal communication with Preah Sisovath HS, 2016.

Table 2 Contrast in Educational Attainment Level among Public & Private School Teachers, 2018-19

| Education Level Completed | Public School Teachers | Private School Teachers |
|---------------------------|------------------------|-------------------------|
| Primary Level | 1.8% | 1.4% |
| Lower Secondary School | 18.4% | 6.0% |
| Upper Secondary School | 54.2% | 29.2% |
| Undergraduate Degree | 24.2% | 58.4% |
| Graduate Degree or Higher | 1.5% | 4.9% |
| Total | ≈ 100% | ≈ 100% |

Source: EMIS, 2019b

education officials. It is difficult to draw any specific conclusions in this regard because there has been little in the way of empirical investigation of quality differences between the two sectors. Although official statistics do not break down private school teachers by subsector, recent reporting indicates that 63.3% of private school teachers have undergraduate or postgraduate degrees, compared with only 25.7% of teachers in the public sector (see Table 2) (EMIS, 2019a & b).

The above notwithstanding, the movement of middle-class students to the private sector in ever-higher numbers does suggest that there are indeed quality differences between public and private schools. Small-scale attitudinal surveys among school managers, teachers, and students also suggest higher standards of governance in private schools, which promote stronger teacher discipline (KAPE-SCI, 2013). More recently, testing by the Program for International Student Assessment for Development (PISA-D) found major differences in ability rankings between students in private and public schools, with the performance difference equivalent to about two years of schooling; that is, grade 8 students at private schools have the equivalent performance of students in grade 10 at public schools (MoEYS, 2018). Whether standards of quality in private schools are indeed higher or not, the perception among parents appears to be that they are. This suggests that the loss of middle-class students to the private sector will continue unabated unless MoEYS can make public schools more competitive, especially in inner-city areas where the wealthy tend to live.

This discussion should highlight the mixed nature of the success of Cambodia's First Educational Reform Cycle regarding the secondary education subsector. The strategies employed internalized many of the lessons learned from the 1990s, including the need for a balanced approach to development that comprised both supply-side and demand-side inputs. These inputs had a major impact on student participation rates; however, these improvements soon reached a plateau due in large part to radical changes in the country's social and economic context, notably an expansion in the factory and plantation-based economy in many provinces, intensified migration, and the burgeoning growth of the private secondary school sector in Cambodia's urban areas. By the end of the first decade of the new century, reform had largely stalled, setting the stage for a new wave of reform.

7.6 Nemesis: Educational Quality-Focused Programming

Overall, earlier educational reform achievements were mainly limited to changes in school access. Even in this area, such performances appeared to have peaked by 2010, as described above. Although very low rates of secondary school repetition remained virtually unchanged between 2005 and 2015 (see Table 1), there are doubts about this data's integrity, given the pervasive practice of student payments to teachers for private classes. These payments are generally seen as *quid pro quo* exchanges in which students buy their grades (UNDP, 2015).

In terms of external assessments of the sector, there is generally a lack of systematic data collection on meaningful educational quality indicators. Nevertheless, there is growing evidence that educational standards in the public secondary school sector are low. This conclusion can be inferred from several different sources: employer surveys that voice concerns about low levels of critical thinking ability among school graduates (Cambodian Federation of Employers and Business Associations [CAMFEBA], 2008); plummeting pass rates on the *Bac II Examination* at grade 12 when rigorous standards of invigilation were introduced in 2014 (Department of Examinations, 2013-19; see also Table 3); and reports of extensive private tutoring that in many cases approximates teacher-mediated extortion (Brehm & Silova, 2014; UNDP, 2015). As noted above, the latter problem suggests that most students cannot access the full state curriculum unless they pay extra fees to teachers, which hits the most deprived students the hardest.

Given the deficits in educational quality recounted above, a number of large-scale educational development projects supported by bilateral donors (e.g., USAID, Japan International Cooperation Agency [JICA]) and the development banks were introduced around the start of the second decade of the new century. These projects sought to expand improvements in the sector by shifting the primary focus from school access issues to educational quality concerns. These new projects were characterized by a number of critical strategies that included: enhanced curricular relevance (e.g., life skills education reform); increased focus on science and technology; capacity-building for teachers with a focus on inquiry-based learning (especially in the natural sciences) and other new methodologies; school governance enhancement; and the utilization of stakeholder-driven development approaches. The latter approach was particularly innovative and entailed multiple sub-strategies that included: school self-selection for participation in a project; school-based selection of life skills topics based on locally perceived needs (e.g. drug abuse prevention, migration); and school improvement grant planning based on the use of Activity Menus. The use of Activity Menus sought to help stakeholders identify their problems and then match interventions from the menu accordingly (see, for example, Educational Support to Children in Underserved Populations, [ESCUP], 2008).¹⁴ Menu approaches enabled freedom within a fixed structure so that communities with limited exposure to new ways of doing things could experience some 'pump-priming' in the

Table 3 Progression of Bac II Examination Pass Rates, 2013-19

| Year | 2013 | 2014* | 2015 | 2016 | 2017 | 2018 | 2019 |
|--------------------|---------|--------|--------|--------|--------|---------|---------|
| Bac II Pass Rate | 86.8% | 40.7% | 55.9% | 62.2% | 63.8% | 67.1% | 67.5% |
| Total Sitting Exam | 108,288 | 89,937 | 83,341 | 89,661 | 99,728 | 113,365 | 117,043 |

*Implementation of Examination Reforms

Source: Department of Examinations, MoEYS 2013-19

way that they undertook educational planning. The rationale behind this strategy was to build ownership of programming and, by extension, long-term sustainability.

Bank-funded programming that sought to improve educational quality focused heavily on the development of large resource centres equipped with state-of-the-art science and computer labs, as well as libraries and faculty meeting rooms. Secondary Resource Schools (SRS) were intended to share their facilities with surrounding secondary schools, following a resource sharing strategy employed under MoEYS' cluster school policy in the primary school sector (Pellini & Bredenberg, 2015). These investments were coupled with massive capital spending in infrastructure repair and construction as well as the procurement of sophisticated science

¹⁴ The ESCUP Project was one of several innovative programs across several countries supported by USAID through an umbrella project called EQUIP.

equipment and supplies to equip lab facilities. Computer lab development embraced new technologies such as 'thin clients' to reduce energy consumption, minimize maintenance, and reduce costs.¹⁵ These innovations made computer labs much easier to maintain and sustain. As was the case with bilateral programs, the international banks also provided school grant assistance to build local ownership and enhance curricular relevance.

The quality-focused investments of the 2010s were characterized by well thought out strategies that in any professional school environment should have worked. Unfortunately, the verdict on much of this investment is that impacts were muted at best (see, for example, Improved Basic Education in Cambodia Project [IBEC], 2014). Not surprisingly, the most significant successes occurred in schools where school governance and leadership were strong. But, by and large, investments to raise educational quality collided with a culture of risk avoidance among school managers and income generation activities among teachers (KAPE, 2014). Various assessments found that in many cases, lab facilities were underutilized because teachers placed a higher priority on their private teaching than they did on their public teaching, for which they were being paid by the government (KAPE, 2014). Similarly, school directors did not wish to come into conflict with their teachers by curtailing their income generation activities, even when these clearly impinged on mandates from government-supported projects.

The emergence of private teaching as a significant problem in the secondary education system started many years ago as an unofficial means for teachers to cope with chronically low salaries. Over the years, these practices have become more and more entrenched to the point where, in many cases, private teaching has now displaced the number of hours that teachers are supposed to spend on their regular classes. Particularly in urban schools, secondary school teachers are now emboldened to actually teach their private classes during working hours and on school premises as an ideal supplement to public classes. Attendance of these classes is mandatory for a student to pass. As noted above, most school directors generally turn a blind eye to these practices to avoid conflict with their teachers. Indeed, many school directors are sometimes complicit in promoting these practices because they organize the wealthiest students into special classes and then take commissions from teachers to get assigned to these classes since teaching them can be highly lucrative (MoEYS, 2016a). Ironically, the entrenchment of these behaviours has happened as teacher salaries have been increasing dramatically (WB, 2020b). Not surprisingly, unconditional increments in salary payments have not necessarily translated into higher professional standards among teachers or administrators.

In an environment of such low standards of school governance, the introduction of quality-focused programming had met its 'nemesis', and it is doubtful that any programming, no matter how well thought out, can succeed unless governance standards can first be improved. Herein lies one of the significant lessons learned from quality-focused programming during the last decade, namely that *investment in educational quality interventions cannot succeed without good school governance and professional teacher standards*. This conclusion undercuts an oft-proposed remedy for improving educational quality, which is that Cambodia must increase its budget allocations for the education system to a higher proportion of GDP. While such amplified investment is indeed a 'necessary' condition for improvement, it is likely that it will not be 'sufficient' by itself to make the difference without major reform in school governance. That is, educational investment without performance accountability cannot succeed.

Poor school governance is a problem that grows mainly out of the politicized nature of

¹⁵ Thin client labs proved to be a major innovation in computer lab emplacement strategies and were piloted successfully by USAID in 2009 and then subsequently embraced by the ADB in the years following.

Cambodia's education system in which most school directors hold their posts not because of any particular merit but rather because of their seniority and political affiliation. This is not to say that a politically appointed school director cannot be both competent and properly affiliated, only that competence is often not seen as the most relevant criterion for one's appointment (Bredenberg, 2008; Kelsall et al., 2016). This situation is highly specific to Cambodia's culture of patronage networks, upon which many Cambodians depend for their economic and social survival. The cultural and political roots of such arrangements make it very difficult to professionalize the education service, which sometimes requires removing individuals due to incompetence, poor leadership, or even corruption. Given the lucrative nature of secondary education service provision, such problems are particularly intractable in many secondary schools. And because school managers are vetted based on their political affiliation, and not necessarily any qualities of leadership or professionalism, efforts to mitigate school governance issues by providing school leadership and management training have had very mixed success; indeed, many would argue that such training interventions have had only a marginal impact on school governance, though this remains a favourite strategy of many donors (Improved Basic Education in Cambodia Project [IBEC], 2014; KAPE, 2016). Given this analysis, school governance became a central focus of new reforms that started in 2014.

7.7 The Second Education Reform Cycle (2014 to 2019) and a Charter School Movement

Continuing deficits in educational quality at the secondary school level created high levels of public dissatisfaction (especially among youth), embodied mainly by middle-class flight from the public schools and static net enrolment levels. These trends came together in the 2013 national elections in which the ruling party nearly lost its parliamentary majority. Some observers attributed the large loss of seats by the ruling party in part to the disaffection of youth who voted in record numbers during the 2013 election (e.g., KAPE-SCI, 2014). Winning back the youth vote, therefore, became an important political strategy for the ruling party, thereby making renewed educational reform a key priority.

These events catalysed a decision at the highest levels to replace the leadership in MoEYS with more forward-looking individuals who had a higher tolerance for risk-taking, and who better understood the needs of a 21st century economy and the role of the education system in meeting these needs. A new Minister of Education, Youth and Sports, appointed in 2013, moved quickly to create and implement a new reform package, summarized in Box 1. Eventually, the number of measures included in this new Educational Reform Cycle reached 15 discrete points that included support for 'autonomous public schools' (also known as New Generation Schools), School-based Management to improve school governance, and teacher career paths, among other things. By 2015, many of these measures were in full swing, initiating a new wave of reform in the school system at all levels.

BOX 1: New Educational Reform Agenda (2014)

1. Strengthen in-depth reform of public finance management
2. Strengthen personnel management
3. Examinations reform
4. Create a think-tank to stimulate educational innovation
5. Reform higher education
6. Improve educational quality
7. Develop technical & soft skills
8. Reform physical education and sport

Many of the reforms summarized in Box 1 were targeted at the secondary education sector, including reforms that abolished the *Diplome Examination* at grade 9 as a centrally administered test and cleaned up administration of the *Bac II Examination* at grade 12. The implementation of examination reform at the grade 12 level in 2014 illustrated how poorly

prepared many students were for the examination, with pass rates dropping by more than 50% when students were no longer allowed to bring cheat sheets into national test sites. This outcome also exposed the ineffectiveness of private tutoring in the face of a rigorously administered external examination system. The transformation of the external grade 9 examination into a locally set and administered examination also undercut a huge rationale for private tutoring at the lower-secondary school level, which in turn helped to curtail teachers' ability to extort money from students. Without the need to teach to the test, there was now greater freedom to teach at the lower-secondary school level in ways that moved away from rote memorization of facts and figures for the examination. Besides, the localization of the *Diplome* Examination at the grade 9 level saved the Ministry a huge sum of money in administration costs, which could be diverted to efforts to raise teacher salaries.¹⁶ Raising teacher salaries at all levels was another important strategy to bring about educational reform, but particularly at the secondary school level where MoEYS had historically had little leverage over teachers to curtail their private classes. In this regard, it should be noted that many secondary school teachers in urban areas were being paid a salary as full-time civil servants but only worked a small fraction of the official hours required.

One of the key MoEYS strategies employed to support improved school governance involved the use of a School-based Management model (SBM). This strategy and others like it grew out of the *Effective Schools Movement* of the 1980s, which emphasized the identification of key practices such as strong accountability as being crucial for improved school performance (Bennet, 1991). The World Bank has been particularly fond of this strategy in recent years. Essentially, SBM seeks to give schools more freedom and autonomy to improve their performance, but with strong safeguards to ensure that they are held accountable for the new freedoms that they receive. Different approaches to achieve SBM-mediated school accountability were put in place by MoEYS as part of second-wave reforms. Some of these followed more conventional methods, such as project-based models implemented by the international development banks. In contrast, others have used more radical approaches involving fundamental institutional changes leading to the establishment of charter schools that form part of the public education system but which operate almost like private schools.

The current wave of educational reform has some other key features that greatly distinguishes it from earlier efforts. A key point of contrast in this regard refers to the need to move away from uni-dimensional development models in which all schools are treated as though they are the same. This realization grows out of the muted success of earlier investments aimed at raising educational quality standards that did not take account of the high degree of variability between schools, particularly as this concerns issues of school governance. As noted earlier, schools with good governance were more likely to use resources effectively, whereas poorly managed schools largely wasted the support provided to them. Thus, Ministry reformers realized that it made no sense to provide investment to schools equally without regard to their standards of internal governance. This realization led to a greater willingness to introduce 'multiple development tracks' involving differential investment in secondary schools based on their ability to utilize the investment effectively (KAPE, 2016). Such willingness entails many risks in terms of perceptions of fairness and social equity, particularly from the public and development partners who are often wedded to politically correct notions that investment in public education should benefit all students equally. Nevertheless, the willingness of educational leaders in MoEYS who are guiding current reforms to take these risks has opened the door to one of Cambodia's most radical experiments in improving educational quality,

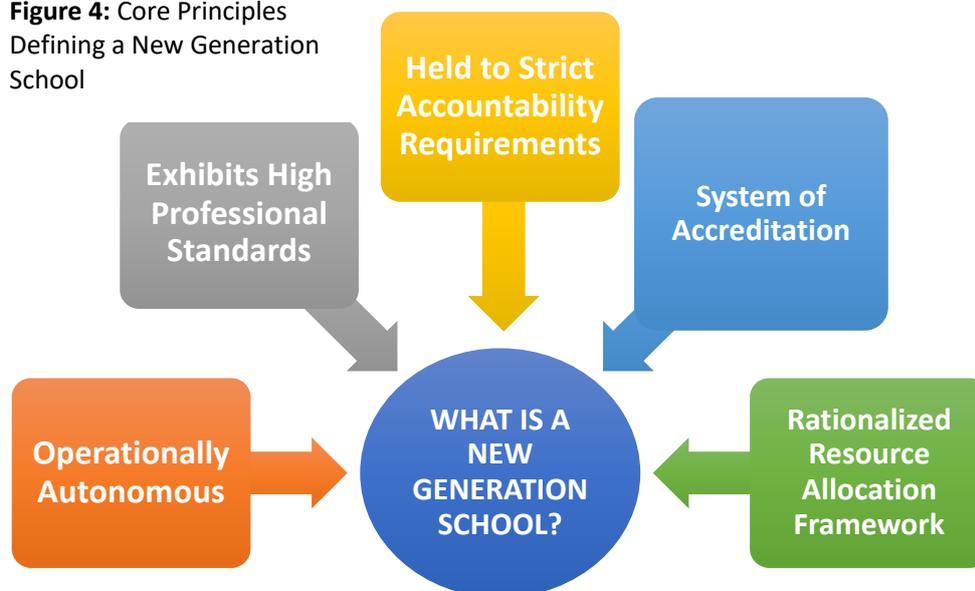
¹⁶ Private conversation with H.E. Dr Hang Chuon Naron, Minister of Education, Youth, and Sport, 2015. See also Education Congress (2015).

namely a homegrown charter school movement seeking to establish independent public secondary schools that have the autonomy needed to innovate and raise educational standards.

In the Cambodian context, charter schools are commonly known as *New Generation Schools* and are an official part of the new reform agenda of MoEYS.¹⁷ Charter schools that have in place high standards of governance are eligible for significant levels of investment so long as they can maintain their accreditation as New Generation Schools. Strategically, it is believed that more individualized channels of investment in a few good schools today will generate the high-quality human resources that will in the future be better able to support an expansion in the quality of educational services across the entire country. Thus, high investment in publicly subsidized charter schools does in some sense address social equity concerns in the far future but recognizes that there is simply not the necessary human resource base in Cambodia to raise standards at all secondary schools at the same time (KAPE, 2016). Such reforms take a long-term view of 15 or 20 years, which is generally impossible in short-sighted donor-funded projects that occur in very short time frames of five years or less.

As part of the New Generation School Policy developed by MoEYS in 2016, a *National Oversight Board* was created to approve and monitor the use of funds received from the public and other sources to ensure that these investments yielded improved student services (MoEYS, 2016b). Breaking with precedent, the Ministry contracted the services of a local NGO partner to assist the Board in the development and oversight of New Generation School programming. This was the first time that the Ministry has ever used taxpayer receipts to engage a civil society partner to implement its programming. The Board makes recommendations for continued *accreditation* of each New Generation School. If a school is found to be in non-compliance with key criteria for performance (e.g., no private tutoring, enhanced library services, and so on), it may lose its accreditation. Without continued accreditation, the school will lose its access to special public resources. The composition of the Board reflects public-private partnership principles in that it includes both public and non-public actors.

Figure 4: Core Principles
Defining a New Generation
School



¹⁷ New Generation Schools are designated as an official Ministry policy measure in ‘Point 14’ of the new Education Reform Agenda promulgated by the new Minister of Education.

MoEYS identified *five core principles* that should define a New Generation School. These principles are illustrated in Figure 4 and address matters of governance, professionalism, autonomy, accreditation, and rationalized resource allocation (MoEYS, 2016c). The core principles underlying a New Generation School relate above all to its *new governance structure*. This structure provides *operational autonomy* to school managers to *innovate* and ensure *high professional standards* at all levels. However, the price of this freedom is that school managers are held strictly accountable for their performance and teachers must meet high standards of professional behaviour. Private tutoring is forbidden, and teachers are required to teach the maximum number of hours per week, as prescribed by MoEYS policy. Teachers are also required to use technology in their teaching, set professional goals, and attend regular professional development meetings that often entail individualized conferencing. Teachers receive special incentives to supplement their salaries (to compensate for the cessation of private tutoring), as well as scholarships for professional development opportunities. Importantly, teachers are vetted at the end of each school year by an accreditation body that may or may not authorize contract extension, based on a performance review. To ensure that both school managers and teachers are motivated to meet these new standards, they are competitively recruited by the Oversight Board. Competitive recruitment of school managers and teachers is an unheard-of practice which conflicts with the patronage-based system of appointments that generally governs the public education system. In this sense, New Generation Schools have adopted new practices of personnel management in the public sector that are revolutionary and more akin to the private sector.

Another defining aspect of a New Generation School is the emplacement of a *rationalized resource allocation* framework. In a normal public secondary school, parents and students pay hefty unofficial fees directly to teachers. Thus, there is a significant investment from local communities in public schools, but none of this investment adds value to school services because it bypasses the school and flows directly to teachers who are not held accountable for their performance. In a New Generation School, a school must abolish all informal payments but may negotiate voluntary contributions from middle-class parents (low-income families are exempt) and local communities. These funds flow directly into school coffers. Schools are required to use the funds and those from other sources to ensure the delivery of high-quality student services, teacher incentives that are linked to performance, and investment in school facilities, among other things. In this respect, accreditation visits are conducted to ensure strict compliance with these expectations. Thus, New Generation Schools approximate in many ways private schools in terms of the way that they allocate resources from all sources to ensure a high standard of services.

Finally, New Generation Schools are defined as 'schools of choice.' This means that parents from any part of a province or municipality may enrol their child there if the child meets admission criteria (e.g., entrance examination results, literacy tests, and so on). Parents may be asked to contribute a voluntary fee to the school in exchange for the abolition for all unofficial fees and the maintenance of the school's accreditation as a New Generation School. According to policy guidelines, this happens in the 4th year of implementation, conditional on continuing high standards of education and accreditation. Parents who are determined by the school to be of limited means are exempt from such payments. To assist the school in waiving these voluntary fees, MoEYS provides a substitute payment in place of the exempted family using funds from a *Social Equity Fund*. This special fund, administered by the Oversight Board, ensures that all social classes have access to New Generation School services.

The implementation of New Generation School reforms has not been easy for MoEYS. The

governance requirements of the New Generation School system very much collide with deeply entrenched, and essentially dysfunctional, behavioural patterns among teachers, school managers, and local education officials in the public sector. These patterns include the politicization of appointments, shadow teaching practices (i.e., private tutoring), and a general lack of accountability. Historically, public schools have never been denied investment due to poor performance, nor have teachers or school managers ever been demoted, re-assigned, or sanctioned in any way due to their performance (except in cases of egregiously corrupt behaviour or abuse). Early efforts to establish a New Generation School governance model in one of the most corrupt secondary schools in Phnom Penh provides a good case study of some of the challenges faced by MoEYS reformers. In this case, New Generation School emplacement met with fierce resistance from resident teachers that could only be addressed by a firm determination on the part of the most senior management within the Ministry. This was an encouraging display of political will to enforce reform. The Ministry was able to deal with opposition from teachers by establishing what is known as a 'school within a school' model in which an oasis of good governance was created within the school with its own managers and externally recruited teachers. Nevertheless, the students who enrolled in classes within this oasis stopped paying for private classes, which infuriated their former teachers who lost thousands of dollars in illicit fees. Such problems will likely occur in many urban schools where shadow teaching that involves significant sums of money is rampant. Teacher demonstrations at the school have periodically marked the implementation of reforms and demonstrate the limits of replication.

7.8 Assessing the Results of the Second Education Reform Cycle

As the second decade of the 21st century comes to a close, overall impressions of the second-wave reform cycle in the secondary education sector have generally been positive (WB, 2020b). Reforms focusing on improved governance and quality seem to have reached farther than they ever have before in achieving some notable changes in secondary education, including cleaner examinations, higher teacher salaries, more efficiency in the allocation of resources (for example, the direct deposit of teacher salaries to eliminate skimming), some improvements in dropout reduction, rapid progress towards school-based management, and the establishment of an operational policy framework that creates autonomous public secondary schools (see Box 2). In addition, MoEYS also brought about some radical changes in the modalities of reform in the sector by outsourcing the implementation of some selective reforms, such as charter school establishment, to the non-state sector. This strategic decision by the leadership in MoEYS, while not popular among bureaucrats, represented a dramatic break with precedent. The New Generation School model and its new paradigm for educational reform has enabled MoEYS to accelerate reforms by side-stepping the bureaucracy; increase accountability by linking contract renewals with performance; and save money by eliminating the opportunity for bribes and kickbacks for capital expenditures.

One of the first steps that MoEYS pursued in changing teacher behaviours and pushing the school system towards greater accountability was a major increase in teacher salaries. A key reason that teachers often refused to comply with mandated rules and regulations (such as prohibitions against private teaching) was that salaries were too low. Thus, a first step towards leveraging change effectively was to increase salaries to address this long-standing grievance. During the second reform cycle, MoEYS succeeded in making major increases in teachers' starting salaries, with increases ranging between 208% (lower-secondary level) and 327% (upper-secondary level) in comparison to salary levels in 2014 (see Box 2). These increases fuelled a massive expansion in the overall annual education budget from \$343 million in U.S.

dollars in 2014 to \$848 million in U.S. dollars by 2019, 80% of which comprised salaries (WB, 2020b).

Though increasing salaries was a necessary and long overdue step in the process of leveraging behavioural change, the massive increase in the education budget has placed great pressure on MoEYS to demonstrate some tangible improvement in learning outcomes, which continues to be elusive. In this regard, PISA-D testing of 15-year old students in 2017 found that only 8% of those tested could perform at minimum proficiency in reading, and that only 10% could do so in mathematics (MoEYS, 2018) (see Table 4). These results came as a major disappointment to policy makers and were much worse than expected by many observers. Similarly, the *National Student Assessment* conducted by MoEYS in 2017 in the subjects of Khmer, Mathematics and Physics showed hardly any improvement in performance scores from the baseline levels established in 2014. By and large, these outcomes suggest that increases in salary have had little impact on teacher performance or changes in behaviour.

BOX 2: Key Achievements under the Second Education Reform Cycle for Secondary Ed Sub-sector (2014-19)

1. Elimination of Corruption in Bac II Examination Administration
2. Improvement in Bac II Exam Pass Rate from 40.7% to 67.5% in spite of more rigorous test administration
3. Increase in Lower Secondary School starting salaries from \$1,259/yr to \$3,876/yr (+208%)
4. Increase in Upper Secondary School starting salaries from \$1,814/yr to \$4,222/yr (+327%)
5. Decline in Dropout Rate at Lower Secondary from 21.2% to 15.8%
6. 245 Secondary Schools receiving active investment in SBM
7. Establishment of an Operational Charter School Policy Framework and 7 Secondary Charter Schools

Sources: EMIS, 2019a; WB, 2020b

Indeed, anecdotal observations suggest that most teachers continue to place a higher priority on their private classes in comparison to their public classes, which contributes to underutilization of new school facilities and a rationing of the official curriculum (based on students' ability to pay) (KAPE, 2019). This points to a problem of enforcement and the unwillingness of school directors to use the provision of higher salaries to leverage behavioural changes at their schools.

Table 4: Learning Outcomes at Secondary School Level, 2014 & 2017

| PISA-D Testing (15-year Old Children) | Baseline | Post-test (2017) |
|--|-----------------|-------------------------|
| Khmer Reading (% Achieving Minimum Proficiency) | -- | 8% |
| Mathematics (% Achieving Minimum Proficiency) | -- | 10% |
| National Student Assessment (Grade 8) | (2014) | (2017) |
| Khmer (% Correct) | 56% | 54% |
| Mathematics (% Correct) | 44% | 47% |
| Physics (% Correct) | 53% | 46% |

Source: World Bank, 2020b

An important bright spot for MoEYS in the battle to improve educational quality has been the reported outcomes in the New Generation School pilot. Between 2015 and 2019, MoEYS invested about \$4.8 million in the New Generation School system for school modernization as well as policy and curriculum development (MoEYS, 2020). These schools have not disappointed and have reported very encouraging outcomes on a number of important metrics, including very high pass rates on the national Bac II Examination, high transition rates to university, very low dropout rates, an accelerating rate of school accreditation, and high professional standards among teachers (see Table 4.5). Many of these indicators move beyond test scores and demonstrate the ability of students who study in these schools to compete successfully in international academic competitions as well as attaining high rates of transition to university. In addition, learning appears to have broken out of an exam-driven mode, leading to a profusion of project work completed by students. For example, in 2019, students enrolled in secondary New Generation Schools completed 490 group projects on topics of their own choosing. This was a significant breakthrough in the culture of learning, which is still very much exam-driven. New Generation School administrators have also been reporting that many of the students enrolling in their schools are returning from the private sector, which demonstrates the ability of public schools to effectively compete with private schools when conditions of governance improve. Indeed, one New Generation School in the capital reported that demand for enrolment was so high that it could not accept more than 19% of the students applying because of a shortage of classroom space (MoEYS, 2020).

Table 5: Key Metrics for New Generation Secondary School Performance (2019)

| Metric | NGS | National |
|--|---|----------------------|
| Bac II Examination Pass Rate: | 91% | 68% |
| Students with A, B, or C Bac II Pass: | 35% | 8% |
| Transition to University: | 88% | 13.69%* |
| Students Receiving Medals/Awards: | 612 | n/a |
| Students studying ICT 3 hrs/week or more: | 100% | 0% |
| Dropout Rate: | 4% | LSS: 16% USS: 17% |
| Secondary Schools Accredited: | 5/7 | n/a |
| Secondary School Teachers with 4-Year Degrees or Higher: | 86% | 43% |
| Teachers Completing Career Path Plans: | 98% | n/a |
| Student Projects Completed per year: | 490 Projects (1 project per 6 students) | n/a |

*Gross Enrolment (Tertiary)

Sources: MoEYS, 2020; EMIS, 2019a; World Bank, 2018

New Generation School reforms are also driving innovation in the secondary education sector more broadly, leading to partial replication in a number of larger bank-funded projects, thereby fulfilling high expectations among MoEYS leaders for knock-on effects. In addition, the high level of usage of new technologies in the New Generation School system is providing a useful foundation for MoEYS planning to address school closures resulting from Covid 19, including the production of hundreds of archival video lessons that are being presented online, as well as other general resources for online education. Similarly, the New Generation School system is pioneering a network of school-based mentoring that links with a special training centre established at the National Institute of Education (NIE) for this purpose. Indeed, MoEYS has established the New Generation Pedagogical Research Center (NGPRC) at the NIE to train

experienced secondary school teachers (often recruited from New Generation School sites) to work as full-time, school-based mentors in all the New Generation School sites. Candidates recruited to the Center study intensively for one year and receive a master's degree in mentoring before being posted at a New Generation School. These innovations represent a major step towards continuous professional development goals in the New Generation School system and will contribute to the emergence of a non-threatening professional support model for all teachers.

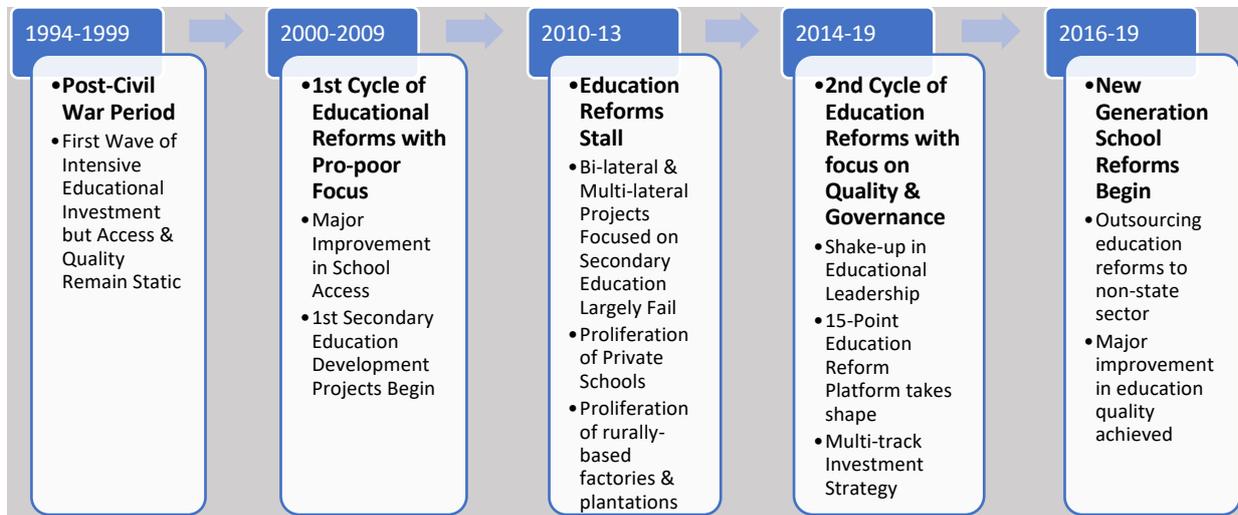
7.9 Future Prospects

The second-wave educational reform cycle has raised optimism among reform-minded educators and development partners to levels not seen in a long time. To a large extent, this optimism derives from strong leadership at the highest levels that is, at last, willing to take major political risks to achieve significant change in the work culture at many secondary schools. For the first time, current educational reforms are moving beyond access concerns to focus on educational quality and governance issues that have the potential to bring Cambodia's secondary education system into the 21st century. This is an important change from a previous leadership that looked back to the 1960s as the golden age for which Cambodia's secondary schools should strive. Current reforms also have a greater air of realism that recognizes the variability among schools, particularly concerning good governance. This has led to a greater commitment to a strategy of employing multiple development tracks of investment, using different gradations of good governance as a key criterion for high or low investment pathways. These strategic changes have created an operational environment where a charter school movement can now exist and even thrive should the political will to support such change continue into the far future. Even more importantly, MoEYS has made a strategic decision to challenge vested interests both among the bureaucracy and among teachers to bring about a much-needed change in how schools are managed. This courageous decision-making process demonstrates a unique and rarely seen political will to achieve change. And while first-wave reform cycle achievements began to stall after five or six years, second-wave reform cycle initiatives are still showing vigour even after seven years of implementation (see Figure 5).

However, there are concerns that the strong political leadership animating current reforms may not last beyond the next national elections in 2023, which may lead to a change in Minister and the possible re-ordering of priorities. Nevertheless, there are signs that reforms have gone too far to be reversed. For example, not only has MoEYS created an approved policy framework to promote New Generation Schools (MoEYS, 2016b & c), but the Royal Government of Cambodia has also adopted the New Generation School concept for inclusion in the *Rectangular Strategy Phase IV*, which outlines the national strategy for social and economic development (Royal Government of Cambodia [RGC], 2018). To be sure, there also continues to be major opposition to current reforms, particularly from among risk-averse bureaucrats and teachers whose lucrative private classes are now at risk. There is even an apprehension that the mandate for change from the highest levels of the Government may also wither away when political patronage arrangements that govern school appointments are challenged by decision-making to remove and replace incompetent school directors. Time is on the side of those who wish to maintain the *status quo* and those actors with such vested interests are acutely aware of this. Therefore, there is a willingness to obstruct or slow down reforms until there is a change in Ministerial leadership, but without doing so in a way that directly challenges the current leadership. Reformers are, therefore, implementing reforms as quickly as they can to ensure that the reforms will have some staying power, particularly with the broader public, which appears to support the changes that are unfolding. If successful, these efforts could create the

political pressure needed to counterbalance more conservative vested interests that favour preserving the *status quo*. Only time will tell whether the reformers will win their race against time.

Figure 5: Timeline of Education Reforms focused on Secondary Education



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CHAPTER 8

New Generation Schools in Cambodia: Aims and Focus

By NO Khorry

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8.1 Introduction

Kampuchean Action to Promote Education (KAPE) is a large local nonprofit organization which began operation in Cambodia in 1999. KAPE's projects have directly benefited up to 71,000 students from 165 schools in 13 provinces in the Kingdom (KAPE, 2020). Notable among these projects is a piloting school reform from traditional to a so-called New Generation School (NGS) program which began in 2015 and is supported by the Ministry of Education, Youth, and Sport (MoEYS). The NGS program is aimed at preparing and producing Cambodian twenty-first century citizens through the provision of a high quality learning and teaching workforce (KAPE, 2020).

According to the policy guidelines by MoEYS, the goal of adopting the NGS program is to transform schools into "autonomous public schools, which receive high investment linked to new standards of accountability and governance as well as professional standards for 21st Century learning" (MoEYS, 2016, p.2). The NGS program is currently applied in 11 school sites, including seven secondary and four primary schools (Donaher & Wu, 2020).

8.2 Aim of New Generation Schools

The enrolment rate of primary and low secondary learners with private schools in the capital increased by 30-50% while this trend also happened in the provincial schools (Bredenberg, 2014). Bredenberg maintained that issues regarding instruction quality, teacher's career pathway, remuneration, and school accountability are questionable, and therefore the establishment of the NGS program is to provide a leading educational standard to students from all socioeconomic status (Bredenberg, 2014). Moreover, the notion of the NGS program is to (1) develop a system and culture of highly qualified teachers and (2) provide a vigorous professional development activity to teachers, so that they will employ the trained knowledge and skills to innovate and develop their students' 21st century skills (Donaher & Wu, 2020; MoEYS, 2016). To achieve the program goals, the NGS program has focused on the following key elements.

8.3 Innovative Curriculum and Instructional Practices

To shape NGS's robust teaching and learning workforce, MoEYS laid out intensive policy guidelines such as restructuring curriculum; adapting materials use and the curriculums' aims regarding knowledge, skills, and attitude; creating e-lesson plans allowing for innovative lesson delivery; and increasing weekly teaching hours to 34 (primary students) and 40 (for secondary graders) (MoEYS, 2016). Moreover, KAPE has run its own Pedagogical Research Center (PRC) co-supported by MoEYS. The center offers a Master of Education in Mentoring program. Graduates from the program will be allocated to facilitate the teaching and learning process: they will act as classroom mentors to enrich teaching performance and students' learning outcomes (MoEYS, 2020b). On the contrary, the practice of adding up more teaching

hours to the traditional schools is problematic. As research has shown, the mentoring activity by school principals rarely happens in those school sites (No, 2020; Tao, Om, & Sot, 2018).

8.4 Technology and School Facilities

The provision of technology supplies such as the Internet connection, classroom projectors, printers and copiers, and teachers' laptops has been important to the NGS. The modern schools are equipped with appurtenances such as meeting and training halls, libraries, school buildings, playgrounds, and laboratory classes. These two core elements are believed to lead to better instructional performance. Donaher and Wu (2020) mentioned that the NGS integrated the technology application as a special feature that facilitates effective and efficient learning and teaching. The use of modern school facilities does not only boost learning outcomes but also provides safe and secure learning and teaching environment (Mhapadi, Moniz, Mosso, & Sagun, 2020). These technological infrastructure allows classroom participants to feel comfortable, and they may treat school like their second home (MoEYS, 2020a).

8.5 STEM and ICT Skills

The NGS does not just renovate the school infrastructure or facilities: it also restores learning infrastructure like knowledge and skills on science, technology, engineering and math (STEM) and information and communications technology (ICT) skills. In the STEM areas, the students have been provided with extensive learning tasks on various subjects such as Mathematics, Physics, Chemistry, and Biology. Students' learning is supported through inquiry-based learning and problem-based learning. They also learn through the integration of ICT skills during their classroom time (Donaher & Wu, 2020). Also, MoEYS is optimistic about those graders that they can be the key future transformative agents who will help the country achieve its economic development goals of becoming an upper middle-income country by 2030 and a high-income country by 2050 (MoEYS, 2014; Ngim, 2018). The practice of STEM and ICT skills may enable students to be active in their roles. At the same time, their knowledge and skills are developing, especially with regard to their cognitive competencies and critical thinking skills.

8.6 Teacher Professional Development Activities

Professional development plays a crucial role in enhancing teaching skills and advancing students' learning outcomes; therefore, teachers are able to participate in various professional development activities to improve their instructional performance (No, 2020). Teachers at the NGS are assigned to involve in professional development activities to upskill their instruction. They frequently engage in study visits, mentoring, and professional learning community (PLC) (Donaher & Wu, 2020; MoEYS, 2019).

The program has adopted "study visits" by sending their selected teachers to do school visitation outside the province and in overseas countries, particularly Thailand. The visits include classroom observation that allows them to pick up best teaching practice, classroom decoration, and technological knowledge. Bo, Seak, Sin, and Souk (2019) argued that study visits kept teachers' teaching practice up to date: they may compare and share their own practice with other teachers. Oftentimes some teachers receive feedback and guidance from their principal or teacher mentors after classroom observation. Research has found that mentoring helped teachers to learn quickly and timely from classroom feedback (No, 2020; Tsybulsky & Muchnik-Rozanov, 2019). The last professional development activity is PLC: it

is a teacher-learning platform where they show up to share their teaching tips and techniques in fostering classroom achievement. It has become the common practice at NGS (Bo et al., 2019; MoEYS, 2019), and it was an efficient professional development activity (Mundy, Howe, & Kupczynski, 2015).

8.7 Conclusion

In short, the quality of instruction in the NGS has significantly improved students' learning outcomes and school reputation. This improvement is made possible by modern school infrastructure such as the newly designed school buildings and playgrounds; the update of classroom materials; competent teachers and school principals, and teachers' improved knowledge and skills gained from training and other professional development activities. Moreover, learners are immersed in various learning activities, especially in STEM subjects, which enable them to develop and enhance their knowledge and skills needed to pursue higher education or future careers. Thus, the NGS program should be expanded to assist Cambodia in producing qualified human resources definitely needed to realize its development goals.

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The Author

NO Khorry is a teacher of English at Samech Choun Nath High School, Kampong Cham. He earned a Master of Education (MEd) from Royal University of Phnom Penh. He was a Literacy Facilitator at Room to Read Cambodia and a School Inspector at Provincial Office of Education, Youth, and Sport in Kampong Cham. He is also a reviewer for Cambodian Education Forum, an online publication platform dedicated to education-related topics.

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* Correction: An earlier version of this article referred to KAPE as Kampuchean Action for Primary Education, KAPE's old name.

CHAPTER 9

Educational Reform in Cambodia: A New Generation School Initiative

By SAR Sophanak

Reprinted from *Monash University (Faculty of Education)*

9.1 Introduction

Globalization has a huge impact not only on economy, politics or culture but also education (Mok & Welch, 2003). This creates numerous challenges, such as regional and global competition of the labor market, for most developing countries including Cambodia. In order to possibly tackle this trend, Cambodia needs to improve its capabilities in terms of human resource development by reforming the educational system and curriculum to ensure that the majority of its citizens will have equal access to quality education (Ayres, 2003; Chhinh & Dy, 2009; Maclean, 2002). In this paper, the writer will critically analyze the way in which Cambodia's educational reform was designed not only to prepare students for the integration of ASEAN economic community but equip them with the 21st century learning skills. The analysis will focus on the case of New Generation School initiative (NGS) in secondary education level. In addition, the writer will argue that introducing the New Generation School initiative in educational reform in Cambodia might be a suitable way to minimize a gap in accessing the same quality of education regardless of socioeconomic classes and it can be the beginning of a new chapter in educational reform, which effectively provides students with the 21st century learning skills in the global perspectives. The two key terms will also be defined in this essay, "globalization" and "New Generation School". This essay will begin by providing a contextual background of the country-based case and then outlining how the constant development of educational reform in Cambodia can overcome the influence of globalization before drawing a case of similar educational reform in Lao PDR.

9.2 Background

a) Demography

Cambodia is a lower-middle income nation sited in Southeast Asia, which shares its boundary with Thailand, Vietnam and Laos. Its total land area is 181,035 square kilometers (Cambodia demographic and health survey 2000, 2001). The population number of Cambodia by 2018 is 16,497,798 (World Bank, 2019a) and it consists of 25 provinces and cities. Phnom Penh is the capital city of Cambodia. There are many ethnic groups in Cambodia but most of those are Khmer, account for 91%; and the rest are Vietnamese (3%), Chinese (1%), and Tai, Cham, Lao and others (5%) (Sawe, 2018). Buddhism is the official religion for Cambodia with 96% of its citizens are Buddhists, but there are other religious groups as well including Christians (1%), Muslims (2%), and others (1%) (Pew Research Center, 2016).

b) Education

Cambodia had a prolonged history of educational development due to the impacts of French colony and the Khmer Rouge regime since mid-nineteen century until the 1990s (Chhinh & Dy, 2009; Clayton, 1995; Tan, 2007; UNESCO, 2008). Infrastructure and other

public services including educational institutions were demolished during that time. After the fall of the Khmer Rouge regime in January 1979, the education system in Cambodia was a donor driven, which received both financial and technical support from various foreign development agencies (Chhinh & Dy, 2009; Sem & Hem, 2016). Since then, a ten-years (4+3+3) education program was firstly introduced in 1979, then it was expanded to an eleven-years (5+3+3) system; and from 1994 until now general education has increased to a twelve-years (6+3+3) program as compulsory education (Chhinh & Dy, 2009; Sem & Hem, 2016). The education system in Cambodia is divided into four levels namely pre-primary, primary, secondary (lower and upper), and Tertiary (Chhinh & Dy, 2009; UNESCO, 2016). Basic education in Cambodia consists of six years (Grade 1 to 6) in Primary school and three years (Grade 7 to 9) in Lower secondary school (Chhinh & Dy, 2009; Tan, 2007). In 2017, the enrolment rate for pre-primary schools was 20%, primary schools was 91% and tertiary level was 13% (UNESCO, 2016; World Bank, 2019b); and for the secondary school was 38% as in 2008 (World Bank, 2019c). The total government expenditure on education was only 8.8% by 2014 (UNESCO, 2016), but it considerably increased to 14.3% in 2016 (World Bank, 2018).

9.3 Globalization and educational reform in Cambodia

The term ‘globalization’ has been defined differently based on the context of which it may refer to. Sociologists normally view it as the complexity of development resulting from extensively integrated telecommunications and a globally unified economy (Giddens, 1999; Sklair, 1999 as cited in Mok & Welch, 2003). Waters (1995) claims that globalization is a social process in which cultural and social constraints decrease and in which individuals become progressively aware about it (as cited in Mok & Welch, 2003). In addition, Giddens (1999) argues that globalization seems to restructure and impact on the way in which people live, and in a very thoughtful manner (as cited in Mok & Welch, 2003). To simplify, in this essay, globalization means the process in which cultural and social interactions, educational change or reforms and economical situations are considerably influenced and transformed by globally integrated communications and shared information.

The impact of globalization on Cambodian education, especially the curricula, occurred in 1993 when the transition to a market-oriented economy was emerged due to the UN-sponsored election (Ayres, 2003; Chhinh & Dy, 2009). As education plays an important role in developing human capital and enhancing economic development, it was forced to ensure that training and workforce need to be adequate and qualified. This led to the educational reform agenda in Cambodia. Moreover, the goals of Education for All (EFA) and the Millennium Development Goals (MDGs) could act as a catalyst for this agenda in terms of the globalization of education (Chhinh & Dy, 2009). Although Cambodia has limited technical experts in educational development, its desire and commitment to enhance personal and institutional capacity are considerably strong. Cambodia is more likely to receive fund and welcome constructive ideas and types of educational reform recommended by donors, advisers, and development partners (Chhinh & Dy, 2009). It is important to note that economic, technical, political, and global issues also affect every stage of educational reform in Cambodia (Chhinh, 2016; Chhinh & Dy, 2009). In this regard, several key written documents related to educational reform policy has been constantly developed including Educational Strategic Plan (2000-2005), Education for All (EFA) National Plan (2003-2005), Educational Strategic Plan (2006-2010), Educational Strategic Plan (2009-2013), and Educational Strategic Plan (2014-2018) (Chhinh, 2016; Chhinh & Dy, 2009; Sem & Hem, 2016; Tan, 2007).

The first educational strategic plan for 2000-2005 aimed for an increase in a number of primary schools' enrolment by eliminating enrolment fee, providing special funding to support schools in remote areas, and building more primary schools across the country. The next educational strategic plan for 2006-2010 altered the focus to enhancing secondary school education through two main reasons: 1) all communes must have lower secondary schools and all districts must have upper secondary schools; and 2) providing scholarships to students in disadvantaged conditions so that they can complete grade nine. The following education strategy plan for 2009-2013 intended to improve internal capabilities by diminishing repetition and drop-out rates and developing institutions for decentralization (Sem & Hem, 2016). This could be the first cycle of educational reform in Cambodia, which its intention was to focus on the investment strategies including scholarships, school fees elimination, and school buildings. The main aim of this reform cycle seems to increase the enrolment rates amongst hazardous demographic students, such as girls and minority groups, in a form of educational access as stated in EFA goals (Bredenberg, 2018).

The second cycle of educational reform in 2014 was to prepare Cambodian students to be more competitive in the ASEAN Economic Community integration in 2015 in line with globalisation (Kelsall et al., 2016; Tolbert, 2018). Responding to this, the educational strategic plan for 2014-2018 was developed to put more focus on equality in education and improving quality of education, developing human resource to the economic demand, and the effectiveness of staff management in the education ministry (Sem & Hem, 2016). Similarly, Bredenberg (2018) claims that the main point of this educational reform was to improve the quality of education as can be seen in Grade 12 examination reform, an end of cheating in examinations (Black, 2017). This reform came along with fifteen discretely key criteria that included several keys points as mentioned above as well as the provision for 'autonomous public schools', also known as New Generation Schools (Bredenberg, 2018). This led to the birth of New Generation Schools in the form of educational reform in Cambodia in order to enhance quality of education in the 21st century.

a) The implementation of New Generation Schools

As the emergence of the 21st century, Cambodian education system encounters numerous challenges including the integration of ASEAN Economic Community, the rapid growth of technological advancement, cumulative urbanisation and especially the increase in the number of private schools (MoEYS, 2016). This led to the situation that most middle-class families have opted out their children from public schools due to its relatively poor quality as viewed and believed by most individuals in Cambodian society (KAPE, 2014). Responding to this, a new model of schooling – known as the Beacon School Initiative (BSI) which was supported by Kampuchea Action to Promote Education (KAPE), USAID, the Oaktree Foundation – has been established since 2011 to help improve educational quality and governance as well as to introduce the Public Private Partnership (PPP) model in public schools (KAPE, 2014). This initiative was implemented as a pilot project in two secondary schools and one primary school in Kampong Cham Province. This project also aimed to comply with the 'Child Friendly School' policy which is an important policy framework of Cambodia's Ministry of Education, Youth, and Sport (MoEYS) in order to effectively address management and accountability issues (KAPE, 2014).

After four years of operation with two years extension, although BSI encountered some challenges, such as a lack of support and collaboration from district education officials, this innovative model had a major impact on educational improvement in secondary schools

creating a new form of teaching and learning for students (Bredenberg, 2018; KAPE, 2014). BSI introduced several creative ideas and initiatives in order to improve the quality of teaching and learning as well as good governance. Those ideas were the creation of new governance structure and teacher recruitment for the project with the aim of improving accountability and transparency, the development of career pathway for teachers to enhance their professional skills and personal development, and the use of technology in classrooms to promote ICT literacy (KAPE, 2014). Having seen the promising innovation of this project, the education minister decided to support it in 2016 as some donors were not able to fund this project and then it was renamed a New Generation School (NGS) project. Also, the New Generation School policy was officially announced as a national policy since then (MoEYS, 2016).

New Generation School (NGS) is the new model of public schooling that consists of five core principles developed by MoEYS in 2016. Those principles are good governance, autonomy, professionalism, rationalized resource allocation, and accreditation (Bredenberg, 2018; MoEYS, 2016). In other words, an NGS must create a new governance structure that effectively provides school principals with operational autonomy in order to innovate and maintain high professional standards in every circumstance. Yet, accountability must be held strictly by the school principals in their management and performance; and teachers must meet the requirement of high professional standards in order to work in this school (Bredenberg, 2018). Moreover, the New Generation Schools aims to develop a new learning environment in public education system that will guide to the creation of ‘autonomous public schools’, which can “receive high investment linked to new standards of accountability and governance as well as professional standards for 21st century learning” (MoEYS, 2016, p. 2). This initiative is currently implemented by KAPE and supported by Ministry of Education and the Franks Family Foundation (UK-based), and around nine public schools in four provinces have implemented the NGS model (Franks Family Foundation, 2019b; KAPE, n.d.).

Qualified teachers seem to be the key in NGS as they play a vital role in not only developing students’ knowledge but also empowering them in a positive way. All teachers and school managers must be competitively selected by the School Oversight Board. Based on the MoEYS policy, teachers need to work for the maximum number of hours in a week, but they get some incentives as the supplementary fund to their salaries. Scholarships for career development opportunities will be provided to teachers regarding professional skills upon their performance and the availability of the budget. In addition, using technologies in teaching is a must for teachers and they also need to set thoroughly professional goals in order to acquire new skills as well as develop a sense of commitment (Bredenberg, 2018). It is worth to noting that private tutoring (Rien Kuor) is not allowed in NGS, and teachers are not allowed to directly accept any informal payment from students or parents. More importantly, students who want to study in a new generation school need to meet eligible criteria, such as the entrance examination (Bredenberg, 2018).

b) Some achievements of NGS in Cambodia

Although the implementation of NGS has not been operated nationwide, its impacts on educational quality in secondary education are very impressed by national and international educators, policy makers, and communities. This led to some achievements that complied with the educational strategic plan in 2014 regarding the second cycle of educational reform in Cambodia (Bredenberg, 2018). The first achievement of this project was the increase in a number of NGSs in Cambodia. In the academic year of 2015-2016, only three public schools was recommended to implement the New Generation School model (Bredenberg, 2018) with

the intention of replicating the best practice of this model and at the same time finding alternative ways in dealing with existing challenges. Satisfyingly, as of 2019, the total number of New Generation School sites have significantly increased to nine public schools in four different provinces, and all these sites are technically supported by Kampuchea Action to Promote Education (KAPE), a local NGO, and financially supported by MoEYS and the Franks Family Foundation (FFF) (Franks Family Foundation, 2019b; KAPE, n.d.). This clearly shows how NGS has positively influenced on public school settings regarding the expansion of NGS model.

The second accomplishment of this model was the acceptance of parents to financially contribute to NGS equity fund in a form of volunteerism, which is more likely to sustain this project in the future. After three years of NGS implementation in Preah Sisowath High School (as a school in school), its reputation was considerably widespread among public, especially parents (Samath, 2019). In order to sustain this project and to release some financial support from MoYES, the equity fund has been recently introduced to parents. It is a voluntary-based contribution with an agreement from students' parents to financially support the school with the specific amount of money for the whole year. The money to be paid was calculated based on the school's annual expenditure that solely focuses on the sustainable investment. Officially, the school publicly announced only 280USD of voluntary-based contribution per student for the 2019-2020 academic year; and unexpectedly, the contribution from students' parents exceeded the amount that school announced because some parents willingly contributed 500USD and 800USD (Samath, 2019).

Furthermore, NGS tends to prepare students for their promising future in terms of independent learners in the 21st century. Numerous teaching methodologies have been used in classroom activities in order to develop students' abilities. Those techniques are Problem-based Learning (PBL), collaborative learning, Differentiate Instruction (DI), constructivism learning, and Professional Learning Community (PLC) (Sacker, 2017; The Phnom Penh Post, 2019). This can positively engage students with some 21st century skills, such as problem solving, critical thinking, collaboration, communication and creativity. STEM subjects (Science, Technology, Engineering, Mathematics) are also introduced in this model, and it is very important for students to initially enable and prepare them for this digital era (Bredenberg, 2018; Sacker, 2017; The Phnom Penh Post, 2019). For instance, the use of ICT in education, which has been introduced in NGS with the aim of improving students' digital literacy, might considered to be an attractive technique for the majority of students in this information age (Sacker, 2017). Therefore, students are likely to gain enormous benefits from this schooling model, which not only enable them to become independent learners but also equip them with skills for their future transitions.

9.4 Education reform in Lao PDR

Lao People's Democratic Republic had a long history of educational development as Cambodia related to French colonialism and social and political conflicts between the early 19th century and the 1990s (Chounlamany & Kounphilaphanh, 2011; McCormick, 2012). Laos and Cambodia also share a similarity of country development in a form of aid-receiving nations (McCormick, 2012). More importantly, reaching the Education for All (EFA) goals in the Millennium Development Goals (MDGs) seems to be another common objective for both countries in the post-colonial era before entering a free-market oriented economy with regards to the impact of globalisation (McCormick, 2012; UNESCO, 2008). In 1986, the New Economic Mechanism (NEM) was introduced regarding the development of international

economic cooperation, and responding to this, Laos government initiated a series of educational reforms (UNESCO, 2008). The reforms intended to: 1) Create a link between education and socio-economic context at the regional level; 2) Develop and increase training in science; 3) Promote education in rural and remote areas; 4) Recruit more minority teachers; and 5) Strengthen cooperation among national and international organizations to education system (UNESCO, 2008).

The curriculum development and basic education system in Laos were changed between 1986 and 2009. Lao decided to reform its curriculum with the intention to adapt free-market intervention but continued to provide eleven years of basic education (5+3+3) to all citizens. In the 2010-2011 academic year, the basic education system was reformed to a twelve-year program by adding one more year for lower secondary level (5+4+3). This was made to comply with the Dakar Framework of Action in 2000, which focused on the EFA goals and internationally educational standards (Phetsiriseng, 2009 as cited in Chounlamany & Kounphilaphanh, 2011).

Another major impact on education sector in Laos was the involvement of educational development project supported by donors. For instance, the Education Quality Improvement Project (EQIP) has been implemented since the early of 1990s. The first EQIP was operated from 1992 to 1998, which targeted some key elements in terms of the quality improvement for teachers in primary and secondary education. The improvement included pre-service teacher training rationalization, physical facility upgrade, and the establishment of an in-service training system and teacher development center (ADB, 2001 as cited in Chounlamany & Kounphilaphanh, 2011). The second EQIP had been implemented for five years, started in 2002 until 2007. The three main aims of this project were the improvement of teaching and learning quality, the increase in educational access and participation, and the enhancement of project implementation and management (Chounlamany & Kounphilaphanh, 2011).

Laos has a relatively clear vision in developing educational strategic plan in terms of human resource development. In order to make a broader connection between education and socio-economic development, the Ministry of Education of Laos cooperated with international donors to develop the Education Strategic Vision by 2010 and 2020 in 2000 (McCormick, 2012). This strategy focuses on the incorporation of international trends and standards into Laos and improving educational system at all level as well as maintaining the involvement of private sector in the provision of education. Additionally, this strategic vision attempts to mobilize education as a key element in human resource development (LPDRMoE, 2005 as cited in McCormick, 2012).

a) The replication of NGS in Lao PDR

Although Laos has been attempting to develop and reform their educational policies or strategies in order to achieve EFA goals and improve educational quality, it encountered many challenges. One of the main problems that affects the implementation of educational reform was the budget. The government expenditures in education was only between 8% and 13% in the last decade (UNESCO, 2008). Another major issue was the relative low salary for teachers. The majority of teachers are usually forced to find alternative sources of income to support their families so that most of the teaching activities are held intermittently. This led to an increase in a number of dropout rates, especially the primary level, throughout the country (Franks Family Foundation, 2019a; Seel, 2003 as cited in UNESCO, 2008). Unqualified

teachers, particularly in rural and remote areas, are also considered to be another major challenge of educational reform in Laos (UNESCO, 2008).

In order to effectively tackle these challenges, the government of Lao PDR showed great determination to replicate the New Generation School model for its basic education. In 2018, the Franks Family Foundation and the Laos Ministry of Education signed a Letter of Intention to develop the first New Generation School programmes (NGSL) at selected public schools in Vientiane. The main objective of this pilot is to replicate the considerable accomplishments of NGS in Cambodia in order to effectively transform educational quality through enhancing school governance, teaching and required subjects for the 21st century skills. NGSL is supported and implemented by the Franks Family Foundation (Franks Family Foundation, 2019a). In this regard, the result of NGSL implementation has not been revealed yet due to the fact that it is the first year of replication, and many improvement deeds to be completed in terms of physical infrastructure and professional development.

9.5 Conclusion

Although there have been many challenges in developing quality of education over the past decade in Cambodia, considerable improvements have recently been recognized and acknowledged in several aspects. The increased budget of government expenditure on education sector reflects the strong commitment of Royal Government of Cambodia to prioritize and enhance educational quality for all citizens. The elimination of registration fee and the increase in a number of school buildings play a significant role in not only increasing the enrolment rates but also marginalizing the dropout rates throughout the country. In other words, it helps create more opportunities for children who really want to have access to education, especially in rural and remote areas. In this regard, the improvements seem to be in the first cycle of educational reforms where equitable access to education is the main aim to achieve as stated in the EFA goals. In this cycle, the quality of education has not been significantly improved yet.

As the emerge of globalisation and the integration of ASEAN economic community known as the second cycle of educational reform, which mainly focused on educational quality improvement, was initiated in 2013 by a new Education Minister, H.E Dr. HANG Chuon Naron. The two main aspect of educational reform in this cycle was the Grade 12 examination reform and the introduction of New Generation School project (NGS). The examination reform intended to enhance the quality rather than quantity of high school students who pass the exam. Students need to improve their knowledge, comprehension, and responsibilities in their chosen field of study, for example science or social science, in order to pass the exam. This led to an enormous change in Grade 12 examination which was diverse from the past decade, and it helped prepare students for their next academic journey.

The introduction of New Generation School (NGS) model in public schools can effectively minimize a gap between the rich and the poor in accessing the same quality of education, and it clearly responds to the key objectives of educational reform in the second cycle due to its educational quality accreditation. Public schools that apply the NGS model welcome all students from various backgrounds to have access to quality of education regardless of socioeconomic classes. All students are treated equally in terms of opportunities and learning resources which actively helped encourage them to participate in many learning activities in order to create transparency and accountability in a classroom environment. Moreover, by introducing contemporarily various teaching methodologies into teaching and

learning activities, for example the problem-based learning (PBL), students are able to broaden their knowledge as well as develop their own concept and creation where critical thinking is initially used in this process. More importantly, as the integration of ICT in education plays a crucial role in the NGS model, it effectively increased and shaped the way in which students can benefit from technological resources in terms of digital literacy. In this particular provision, it is clearly indicated that the integration of NGS model into public schools is likely to provide equal opportunities to students irrespective of social backgrounds. Lastly, it also equipped students with the 21st century learning skills that enable them to reach their academic goals in a global perspective in this information age.

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CHAPTER 10

Evaluating the Effectiveness of Teacher Mentoring: Research Report

By Daavid VANNANEN, Maria MONTELLO, & SUN Somara, KONG Maneth, & LY Hol

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10.1 Introduction

10.1.1 Background

The purpose of the research outlined in this report is to support evidence-based recommendations to the Ministry of Education, Youth, and Sport (MoEYS) at both the level of policy and practical applications. Particularly, this research will support reforms related to the New Generation School (NGS) network that KAPE (Kampuchea Action to Promote Education) is helping MoEYS to implement. As tasked by MoEYS, KAPE has also set up an education research center at the National Institute of Education (NIE) in Phnom Penh. This center, known as *New Generation Pedagogical Research Center* (NGPRC), is the primary platform responsible for the implementation of the research described in this report.

10.1.2 General development goals & educational investment

Provision of quality education is central to the Royal Government of Cambodia (RGC)'s overarching development goal to “transform and modernize Cambodia’s industry from labor intensive to knowledge and skill-driven by 2025, creating a technology-driven and knowledge-based modern industrial economy ... and aspiring to attain upper middle-income status by 2030” (MoEYS, 2018). Moreover, it has been identified that “further diversification of the economy will require fostering entrepreneurship, expanding the use of technology and building new skills to address emerging labor market needs. Accountable and responsive public institutions will also be critical to meeting the evolving needs of citizens and the private sector. Quality of human capital will be of utmost importance to achieve Cambodia’s ambitious goal of reaching middle-income status by 2030” (The World Bank, 2019).

Capacity-building investments figure prominently in the Kingdom’s planning to achieve its ambitious goals. Indeed, capacity-building is one of the four pillars identified in the RGC’s National Rectangular Strategy; this refers specifically to investments in Cambodia’s formal education system. Education system reforms introduced by MoEYS in 2014 have sought to accelerate efforts to modernize Cambodian education including the introduction of New Generation Schools, which are a kind of Charter School contextualized to the Cambodian situation. But there are nevertheless numerous problems that have historically undermined investments in Cambodia’s education system and continue to hamper provision of quality education.

10.1.3 Purpose and Significance

This research focuses on one of the key problem areas in Cambodia’s formal education sector: ineffectiveness of current methods of teacher training and capacity building. Traditionally, the frontline strategy of government and donors to improve classroom practice has been funding of periodic in-service workshops on numerous topics. However, research has shown that this kind of training only accounts for about 10% of the observed change in teachers’ behaviors.

Direct and immediate feedback to practitioners about their teaching (e.g., via mentoring) on the other hand accounts for about 70% of observed change (Centre for Creative Leadership, 1984).

Thus, the frontline strategy used by most donor-funded projects has been shown empirically to be the least effective. This suggests the need for consideration of alternative methods that can improve the efficiency of teacher training and lead to genuine positive change in classrooms. Such considerations should include continuous training of teachers, improved school management, emplacement of school-based Mentors (where feasible), and explicit administrative structures that can support mentoring. There are currently multiple opportunities in the development context for affecting a strategic shift within the education system away from in-service training to school-based mentoring.

Recent changes in the development context in particular refer to the elevation of “mentoring” as a key strategy in the Teacher Policy Action Plan (TPAP) approved by MoEYS in 2015 as well as the commitment of MoEYS to establish a Graduate Degree program, Master of Education (M.Ed.) in Mentoring, at the National Institute of Education (MoEYS, 2015). This strategic shift in approach could lead to significant efficiencies in the way that the MoEYS develops human resources in schools and training institutions. There is as yet insufficient empirical evidence about the effectiveness of such changes for teacher capacity-building in Cambodia, hence the recommendation for intensive research in this area.

The research introduced in this report is intended to be a pilot study focusing on the activities during and following the graduation of the first cohort of the Master of Education in Mentoring program at NGPRC. The expected outcome from this pilot study is to establish concrete implementation strategies and frameworks to support continuous research, evaluation and implementation of new teacher training and mentoring activities and methods in Cambodia. Research activities focus on evaluating the effectiveness of Teacher Mentoring (as proposed under the NGPRC model) to scale and accelerate effective capacity building activities aimed at improving classroom teaching.

In summary, there were three key research questions posed in the original design: (1) What are the Requirements to Study the Effectiveness of Teacher Mentoring in Comparison to traditional methods of teacher training in the Cambodian context? (2) What are the requirements for training teacher Mentors for the Cambodian formal education system? and (3) What are the requirements for an institutional environment to support effective teacher mentoring?¹⁸ The expected outcomes from this pilot study are to establish concrete implementation strategies and frameworks to support continuous research, evaluation and implementation of new teacher training and mentoring activities in Cambodia, as described below.

10.1.4 Operational Definition of Mentoring

In the context of this study, an educational Mentor holds a formal position or function that takes place in an administrative and legal framework. The selection, the tasks, and the attributes of a Mentor can vary significantly from one school system to another, even inside a single country, depending on what institution has the authority to appoint Mentors. These circumstances can affect the outcomes of mentoring significantly.

The framework of mentoring in Cambodian public schools is still under development and the purpose of this study is to evaluate and improve it. For the context of this research, the

¹⁸ See Annex 2.

mentoring framework is currently defined in the scope of the Master of Education in Mentoring program provided by the New Generation Pedagogical Research Center. In this context, Mentors:

- Are experienced teachers who are responsible for helping other teachers through one-to-one professional relationships.
- Are school-based, which means that they spend most of their time in a single school, where they are available to help teachers on a daily basis.
- Have followed a specific 1-year training program at NGPRC. This training encompasses a whole stream on the principles of mentoring and leadership.
- Continue to fulfill normal teaching duties for a small portion of their time.
- Follow up with several Mentees at the same time.
- Undertake classroom observations as their primary method of action. They can undertake other tasks such as preparing lesson plans, co-teaching and animating pedagogical workshops, depending on the needs of the school.

The Mentees are mostly beginners in their teaching profession or new hires in the school, but other categories of teachers can be targeted. One of the objectives of this study is to examine how these different categories of teachers (e.g. age, experience, degree qualifications) respond to mentoring.

10.1.5 A note on Covid-19 response

On 16 March 2020, the RGC announced nation-wide closure of all educational institutions in an effort to prevent the spread of Covid-19. Partial reopening occurred in November-December¹⁹ with students taking turns to go to school in order to keep classroom numbers below 20 at any given time. All the schools reopened full time in January for a new academic year.²⁰ Unfortunately, all the schools had to be closed again in March 2021.

The implementation of Mentor training and placement was profoundly affected by these changes due to the Covid-19 global pandemic. The RGC's response to the pandemic affected this research project in two main ways. First, it complicated the training of NGPRC's students. Second, it directly affected the installation of the new Mentors into their respective positions, causing major delays in their appointments and disrupting momentum.

Impact of Covid-19 on Mentor training

The 25 students in the first cohort of the M.Ed in Mentoring program at NGPRC began their year-long course in September, 2019. This was supposed to have consisted of nine months of classroom study followed by a 3-month practicum. However, along with all other educational institutions, the NGPRC had to close its facilities in mid-March, 2020 and shift to online learning. For the last six weeks of the 9-month theory component (through April 2020), the mentoring courses were held via online video conferences. Students and teachers utilized a host of technologies, which later proved to be very beneficial when they were mentoring in an online teaching environment, e.g., Zoom video conferencing, Google Drive for cloud storage, video creation software. Students were largely proficient with ICT and received a brief orientation about the online platform before the closure of the NGPRC. This meant that the closures due to Covid-19 did not have as significant an adverse effect on "classroom" study during the M.Ed in Mentoring program as it did on subsequent activities.

¹⁹ A few privileged schools reopened in September, such as Sisowath HS and some private schools.

²⁰ In Cambodia, ordinarily the school year starts in November (in October for New Generation Schools) and closes in July..

The practicum component, conducted in May-July, 2020, was intended as an in-person mentoring practicum to occur in two NGS secondary schools in Phnom-Penh, i.e., Preah Sisowath H.S and Prek Leap H.S. Instead, a “virtual practicum” was organized. This online practicum consisted mostly of simulations, as well as selected live observations of private partner school classes. There were two types of simulations. First, NGPRC instructors used existing video recordings of regular classroom lessons, and had the student Mentors conduct “observations” of these videoed classes. The second type of simulations were role plays performed by student Mentors. Though the simulations did not provide all of the features of real classroom observations, this format proved to be very valuable because it permitted student Mentors to start their “real time” observing in a relatively safe environment. More importantly, it was an opportunity to intentionally introduce particular issues: for each role play, the instructors proposed a scenario that might or might not occur during a real practicum, such as “the Mentee challenges the authority of the Mentor”, “the Mentee starts to cry”, etc.²¹ So while school closures prevented conducting the practicum as it was planned, students did have a chance to do just what a practicum is designed for—*practice*.

Impact of Covid-19 on Mentor in-school experience

The installation of student Mentors into their placements in September 2020 did not happen under normal conditions, and the situation varied greatly from one school to another. Most of the Mentors actually started in an empty school, with little to do in terms of teaching or mentoring activities, from September to December 2020.

As for mentoring activities, most of them were limited to preliminary contacts with the teachers of their assigned schools, in the form of orientation workshops. They also helped the school management with administrative tasks and the preparation of the national exams for grade 9 and grade 12 students. Some schools provided only the most basic services and some prepared learning videos (mostly Preah Sisowath, Prek Leap, Hun Sen Kampong Cham). The most active school was Preah Sisowath where they experimented with flipped classrooms and various forms of blended learning. Mentors at Preah Sisowath were quite challenged, as they were required to improvise in a technical support role. Over all, during the September to December 2020 period, Mentors had little opportunity to engage in mentoring and some had little opportunity to engage in *any* educational activities.

Between January and March 2021, the schools reopened; however, the school situation had not fully returned to “normal” even then. In this respect, attendance tended to be erratic as many parents hesitated to send their children to school; many students were starting a new curricular program when they had not fully mastered their previous grade level; and the encumbrances of mask-wearing, hand washing, etc. as new routines tended to slow down the return of school life to normal.

In sum, the events that resulted from the COVID-19 pandemic impacted the research program significantly. Although NGPRC staff managed to follow up with the new Mentors through monthly meetings, they were not able to conduct individual interviews during the critical period when the Mentors actually began to fulfill their new functions. These constraints need to be considered carefully when reviewing how the original research design actually unfolded. Literature review

²¹ As a result of the success of this adaptation, the NGPRC has decided to include this activity in its normal practicum routine, as a 2-week preparation before placing student Mentors in real classes.

10.1.6 Principles of mentoring

Mentoring consists of pairing experienced teachers with less experienced teachers for the purpose of improving the quality of teaching of the less experienced teacher. Mentees, typically new or junior teachers, are assigned a senior teacher who can provide advice, recommendations, and constructive feedback that can influence whether or not that teacher is successful (MoEYS, 2019).

Mentoring goes deeper than solely technical assistance. Emotional support is another important dimension of the Mentor's role, as is assessing the Mentee's abilities and motivation. A Mentor guides the "protégé" through the whole process of becoming a self-reliant practitioner (Portner, 2015). As such, Mentors and Mentees work generally as pairs, though small group mentoring activities are also possible (Reinsch, 2020).

Related literature contains a myriad of personal and professional qualities a Mentor should possess. However, just a small number of those most commonly cited are sampled here. A Mentor should be: honest, a role model, a good listener, enthusiastic, a life-long learner, respectful, a subject-matter expert, and able to communicate objectively. Genuine trust between the Mentor and Mentee is also strongly emphasized as the key to successful mentoring (Portner, 2008). One essential condition for trust is confidentiality. A Mentee may share personal struggles or issues with the Mentor; such information must not be shared by the Mentor with anyone else.

Criteria for matching Mentors and Mentees are still contested. For instance, Lakein suggests that Mentors become "buddies" (Scherer, 1999), which suggests a deep degree of personal connection and even friendship. Reinsch (2020) posits that the selection of Mentors should be competence-, interest-, and aptitude-based, but that competence in the same subject as the Mentee is just one criterion among many. Other sorts of necessary competence include a general pedagogy as well as adult-learning methods and psychology. Some take the view that the Mentor and the Mentee should be purposely chosen from different disciplines (Lakein in Scherer, 1999). Another point of contention relates to age difference. As an example, Reinsch (2020) proposes that the Mentor does not necessarily need to be older than the Mentee. In NGPRC's experience, it is absolutely essential to take culture into account when designing any kind of education programming, as the importance of certain variables—in this case, age and social hierarchy—vary widely across cultures.

10.1.7 Effectiveness of mentoring

Mentoring as a principle is well established, and it has always existed to some extent across all types of employment and industry, not just in the field of education. As for mentoring specifically related to education, Husband (*in Field*, 1994) affirms that the real learning of new teachers has always been school-based (rather than the theoretical education that teachers experience in their pre-service classes). New teachers learn to teach in a classroom with students and they do this supported, mostly informally, by their peer and fellow teachers in that school.

In order to demonstrate the effectiveness of mentoring, researchers and trainers often refer to the "70:20:10 model," which was developed in the 1980's at the Center for Creative Leadership. This model posits that at work, people learn 70% through practical, "hands-on" experience; 20% is gained through social learning, coaching, mentoring, and peer-input; and just 10% is learned from formal, traditional instruction (such as a lecture). Interestingly, this

model was developed in a business context, not an educational context. It has been widely criticized for failing to take into account virtual learning. In addition, it has received the common-sense critique that there are simply too many factors involved and their relative importance vary over time and across places and activities (Jefferson & Pollock, 2014) to enable establishment of such a tidy formula.

What is useful about the model is that it suggests learning can be stimulated and accomplished in different ways, and that there is always a gap between theory and practice, which must be closed to achieve success. Bill Gates notes “Everybody needs a coach” (TED conference, 2013). Gates continued: “In this regard teachers are not different from [athletes]....” Gates cited data from the PISA reading proficiency test to support his claim: 11 of the 14 countries that scored higher on PISA had a hands-on formal system to help teachers improve instructional practice in the classroom.

Asking an experienced worker to guide the novice who enters a profession is not a new idea, and it is not unique to the teaching profession. It happens across occupations and trades. Mentorship, formal or otherwise, has stood the test of time because it is effective: people learn well from others who have more experience than they do when that experience is shared in a safe way, and people learn well in a setting that provides opportunity for them to actually practice their skills and apply their knowledge. Novices approach seasoned practitioners when they believe that they can gain from the relationship; and the inverse also happens—a well-experienced person may approach a novice to share what they have learned over time. In summary, the value of mentoring is tacitly recognized by the fact that informal practice of mentoring across virtually every discipline has been happening for millennia.

10.1.8 Contextualization and institutionalization

Successful implementation of a mentoring program requires that it be both contextualized and institutionalized. That is, it must take account of the socio-cultural environment in which it rests, and it must also be embedded within the (regional and/or national²²) formal education system in order to be sustainable. Depending on the education system, different authorities have the ability to establish and monitor a mentoring program. A major consideration, regardless of the institutional context, is the process of how to select potential Mentors, how to train Mentors, and how to re-insert Mentors back into schools once they have been certified as Mentors (Field & Field, 1994). Other critical questions include how to coordinate mentoring with other training channels in a formal education system; and what should be the main features of a formal mentoring system.

In answering those questions, it should be recognized that the requirements of an education system’s administration can contradict recommendations of professionals and specialists. For instance, many mentoring programs require that Mentors write reports that will have a serious weight in the certification of new teachers (Field & Field, 1994; Portner, 2008). However, specialists emphasize the necessity of teachers recognizing the difference between a Mentor and an inspector: a Mentor is neither an inspector nor a monitor. Specialists also stress the importance of establishing a trustful relationship (see Portner, 2015, “Mentoring is not evaluating”). A Mentor has a two-fold challenge: (a) securing and maintaining a Mentee’s trust

²² In some countries, the USA for example, there is very little national-level policy governing public education; rather, the individual States have significant authority to design their own policies and practice norms (see Scherer and see Portner for discussion on contextualisation in that context). This is in contrast to most ASEAN nations, including Cambodia, where the national government designs, monitors, and controls the public education system.

while being required to share observation with school and system leadership; and (b) not allowing the need for a trusting relationship to interfere with objective assessment and grading of the Mentee (Portner, 2015).

10.1.9 Mentoring in Cambodia

Formal mentoring is relatively new in the public education system in Cambodia, so it is no surprise that the academic literature and grey literature specific to Cambodia is scarce. Nonetheless, there are many organizations using a mentoring framework or mentoring principles to guide their capacity development efforts within the public education system and other sectors as well. For example, the use of an apprenticeship model for vocational training or an internship model for business can be useful reference points in the design of a teacher mentoring initiative. It will be important going forward, to more intensively explore current examples and practices of mentorship across sectors in order to constructively inform mentorship in the education sector.

Teacher Policy Action Plan

Mentoring was introduced as a policy in the *Teacher Policy Action Plan (TPAP)* (MoEYS, 2015). While the details are few, the import of these articles is both positive and negative.

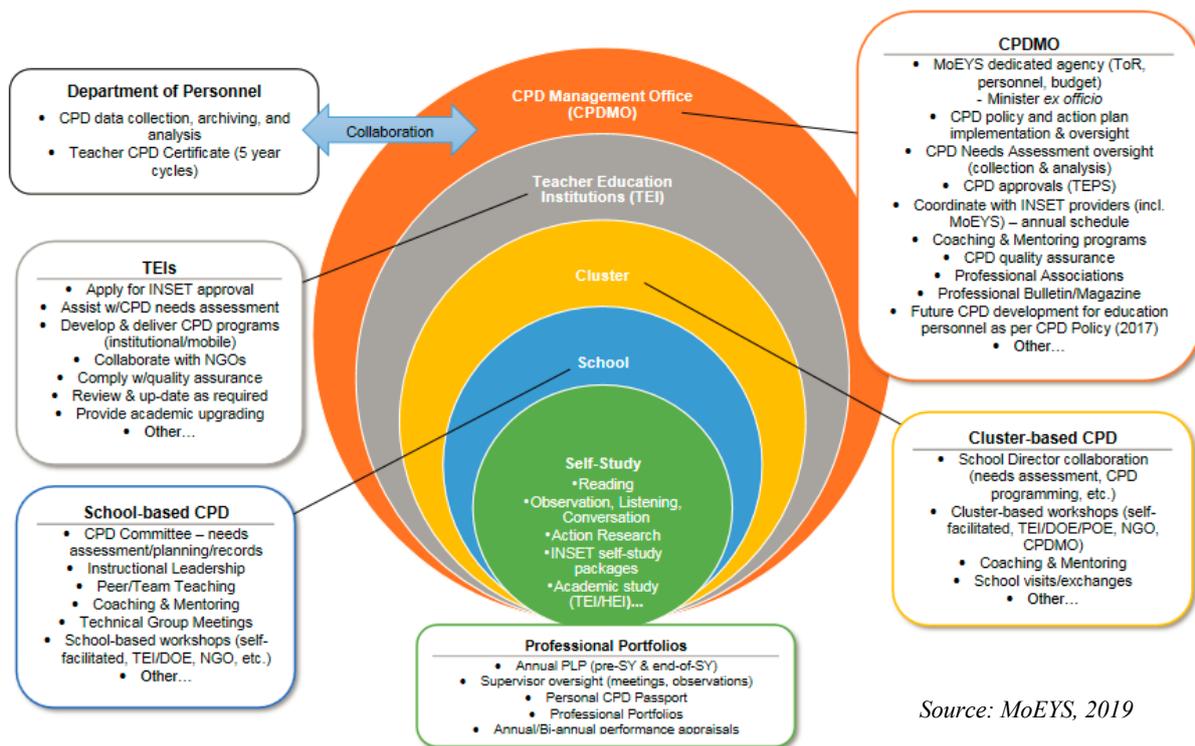
Table 1: Mentoring-related items in the Teacher Policy Action Plan (TPAP)

| Article | Observation |
|---|--|
| Article 3.2.1.2: Create mentoring system at schools | This gives some indication the importance of induction and mentoring but no budget is allocated for this activity suggesting that it is not adequately valued. |
| Article 3.2.1.3: Reduce teaching workload of highly qualified and best performing teachers to support induction and mentoring activities | There are no standards or guidelines provided as to what an optimal workload composition might be; without such a standard, it is unlikely that individual schools would arrive at an optimal workload without a lot of trial and error. |
| Article 9.3.1.1 Train school directors on the skills to conduct onsite mentoring and monitoring (permanent inspectors) | This conflates the role of Mentor and monitor (“inspector”) in the form of the School Principal. This suggests that the official, formal view of mentoring in Cambodia does not respect the true nature of mentoring. |

Continuous Professional Development Framework for Teachers and School Directors

In 2019, the MoEYS released the *Continuous Professional Development Framework for Teachers and School Directors* (CPD Framework). This document develops the ideas of the TPAP and presents the MoEYS plan to develop a “culture of life-long learning”. Mentoring is mentioned as a strategy at various levels, as can be seen in the figure below. Mentoring can be school-based, cluster-based or under the CPD Management Office (CPDMO).

Figure 1: Continuous Professional Development Framework for Teachers and School Directors



The CPD Framework references studies about the importance of the first three years for a new teacher, as that is the time when a teacher’s perception of the profession is being developed. This perception affects a new teacher’s decision about whether to remain a teacher for the long term. Mentors, it states, can provide the feedback and advice, especially in the areas of instructional skills and classroom management, which can influence a new teacher’s success (MoEYS, 2019).

The MoEYS cites mentoring as part of the induction process for a new teacher. After pre-service training and placement of teacher training graduates in schools, novice teachers are on probation. This year-long period is supposed to include mentoring support by a senior teacher (MoEYS, 2019). The senior teacher is obligated to focus his/her support on the development of standards related to teacher licensing; nonetheless, the actions of the senior teacher are indeed that of a Mentor. The CPD Framework specifically mentions three areas of supervision: lesson planning, classroom instruction, and student evaluation (MoEYS, 2019).

The CPD Framework notes that coaching and mentoring roles can be performed by “anyone with the passion for education and helping others to become better educators” and such activities are not necessarily limited to a person formally appointed to the role of “Mentor”. However, the responsibilities of the different stakeholders are not yet distinguished within the CPD Framework. This potential multiplicity of actors (to be mentors) can of course contribute to finding competent Mentors, but can also “over-complicate the CPD system, thereby creating ‘CPD fatigue’ for teachers,” (MoEYS, 2019).

It is an objective of the CPD Framework to reach agreement on coaching and mentoring in schools and clusters and to institutionalize the coaching and mentoring concept through pre-service and in-service training programs. The details of what this looks like are under development. KAPE and the NGPRC are involved in this endeavor, and are mentioned in

several footnotes of the CPD Framework as possible actors to develop a handbook for effective coaching and mentoring among other things.²³

Overview of existing mentoring programs for teachers in Cambodia

A study commissioned by the MoEYS in 2019 and conducted via UNICEF, analyzed initiatives on mentoring within the formal education system in Cambodia. The study reviewed several district and school-level programs, as well as NGO programs.²⁴ It notes that the school programs were not as well organized by those of NGOs and the programs of the NGOs reviewed are more limited in their focus, e.g., promoting reading or other specific subjects, and are not aimed at ensuring teacher education in general (Reinsch, May 2020). This study also mentions programs organized by KAPE but does not specifically mention NGPRC's mentoring program, which is among the most ambitious of mentoring programs in Cambodia. Mentoring initiatives by many other international and local NGOs were also left out of this study. More comprehensive evaluation of the various mentoring programs and frameworks in Cambodia is needed and an objective of subsequent studies building upon the research described in this report.

10.1.10 Training for Mentors

Unsurprisingly, the necessity of training the Mentors is a significant focus of the literature on mentoring. It is widely acknowledged that a good teacher does not automatically adapt to adult education and become a good Mentor (Portner 2015). Another issue is that teaching and mentoring are two different things entirely, and that Mentors are often unsure about their roles and may slip back into teaching (Coppenhaver & Schaper, in Scherer 1999).

The necessity of initial mentoring training in the Cambodia context is highly advised (cf. Reinsch & In, 2020). In this respect, practitioners generally propose a training of trainers (ToT) setup wherein national core trainers that have been equipped in a 4-day workshop then organize and conduct 4-day foundational mentoring workshops to train Mentors. Through this cascade model, Mentors would be oriented and trained with a limited number of resources. However, the inefficiencies of the cascade training model are well documented (e.g., Hayes, D. 2000; Bett, H.K., 2016). Even when the recipients of such training are enthusiastic and able, there is a loss of information, and reduction of the integrity of the contents each time the workshop is repeated. This is natural as no participant will be able to understand all aspects of the content in the way the original trainers intended it and more than likely the on-going training will not have access to the full set of resources available in the original training, which also hampers up-take and understanding.

Prigent (2016) attributes failure of the cascade model mostly to a lack of commitment, some teachers being unwilling or unable to take the time to relay the information or doing it only for persons within their immediate circle. In Cambodia this cascade model has led to unethical behavior, which Prigent calls “a cascade of per diem”. What he means is that financial incentives have an impact on the actions of both the trainers and the trainees: trainees may not actually pass on their learnings if they do not receive a financial incentive to do so and even the trainers are likely to stop conducting trainings if they do not receive a financial incentive.

²³ Experts draw a distinction between coaching and mentoring on many levels. To name a few: coaching is generally shorter-term and performance driven. Mentoring is longer term and, while it includes performance enhancement goals, it also focuses on the broader picture of career development. Mentors concern themselves with the overall development of the Mentee; coaches focus on specific, measurable performance improvements (Kent State University, 2017).

²⁴ Specifically, the report mentions Room to Read. See Beyond Borders and RTI.

Following Chhin and Tabata (2003), Prigent suggests that the cascade model can be more effective if the intermediaries are consistently reliable; however, no suggestions are provided as to how to ensure reliability.

The inefficiency of the cascade model is one reason for the creation of the NGPRC. The program of NGPRC is unique, even from an international perspective, as it is a one-year training program focusing specifically on mentoring through which participants earn a Master's degree. The duration and intensity of the program far exceeds many Mentor training programs. NGPRC assumes that a more lengthy, deep training of Mentors makes sense in a country where finding experienced teachers with a solid theoretical background in pedagogy is challenging. It seems unlikely that, at present, schools will find experienced teachers ready to serve as Mentors for new teachers if given just a short training. Another characteristic of NGPRC's program is that it targets not only novice teachers, but also teachers who already possess some experience, an idea promoted by Reinsch (July 2020).

That a lengthy mentoring training program is necessary in Cambodia and that mentoring of non-novice Cambodian teachers is possible are both assumptions that must be carefully tested.

10.2 Research methodology

This was a mixed-methods study, employing both quantitative and qualitative measurement tools. For the surveys, NGPRC used a non-probability sampling design called volunteer sampling. This allowed all potential respondents to reply to the survey. Tools included a literature review, a quantitative survey with five stakeholder groups by school (Mentors, teachers, non-teaching staff, students, parents), Focus Group Discussions (FGD) with Mentors, and Key Informant Interviews (KII) with principals. Data was collected in two main stages. In addition, information was gathered informally from instructors at the NGPRC.

10.2.1 Literature Review

Secondary data was reviewed to provide a comprehensive understanding of mentoring as a concept in the field of formal education, and to illuminate existing mentoring programs or frameworks employed in other contexts (similar and different) that could be utilized in Cambodia.

10.2.2 Quantitative method: Survey (self-administered)

A survey was employed to assess expectations, opinions, and attitudes of stakeholder groups about mentoring before and after the mentoring activities at target schools. The aim of this tool was to enhance NGPRC's understanding of their perceptions, and was also designed to contribute to the project's three core research questions. Together, the two surveys were designed to determine how well the NGPRC Master of Education in Mentoring program curriculum prepared the Mentors for the practicum and their on-going mentoring responsibilities. Findings from surveys will inform program instructors so that they can improve their teaching and results from this analysis will be directly used to improve the program curriculum for the next cohort of NGPRC students.

The target groups for surveys were (1) Mentors, (2) Teachers, (3) Non-teaching staff, (4) Students, and (5) Parents of students at six New Generation Schools (NGS) High Schools (HS): Sisowath HS in Phnom Penh, Prek Leap HS in Phnom Penh, Prek Anchanh in Kandal, Hun Sen HS in Kampong Cham, Peam Chikong in Kampong Cham and Kok Pring HS in Svay Rieng.

Originally, the program planned to conduct a pre-survey and post-survey in order to see the differences before and after the Mentors’ practicum. However, because of the closure of schools due to COVID-19, NGPRC changed the practicum procedure to consist of analysis of video recorded classes and role-plays rather than in-person observations (as explained above in Section 1.5). For this reason, they conducted the survey after the “virtual practicum” and prior to Mentors being emplaced at their school. Therefore, the survey was conducted digitally in August 2020, and as per the Milestone 4 Report submitted to the Asia Foundation in September 2020. At that time a post-survey was planned to be conducted in December, 2020 in order to provide a before/after comparison of teaching capacity. Unfortunately, however, the post-survey was not conducted due to continued uncertainty around Covid-19.

During the 4th week of August, 2020 the pre-surveys were distributed to each target school. The NGS Team Leaders²⁵ and School Principals had previously been informed of the survey verbally during an orientation workshop. NGPRC asked consent from all Principals via a “Letter to Conduct Research” outlining the purpose of the survey and the target groups. Principals then distributed links to the self-administered questionnaires to potential respondents.²⁶ These links to the online surveys were sent through Telegram to the School Principal who subsequently forwarded the links to each target group through the school’s regular existing communication channels (i.e. each school’s internal Telegram groups). The online surveys were kept open for three weeks in order to maximize the response rate. All on-line surveys were self-administered.²⁷

The numbers of responses from each target group by school are presented below.

Table 2: Number of responses by each target group from each target school

| School/Target Group | Teachers | Non-teaching staff ²⁸ | Students ²⁹ | Parents ³⁰ |
|---------------------------|-------------------|----------------------------------|------------------------|-----------------------|
| Sisowath H.S | 30 | 3 | 166 | 183 |
| Prek Leap H.S. | 31 | 8 | 433 | 52 |
| Prek Anchanh H.S. | 15 | 2 | 324 | 41 |
| Hun Sen Kampong Cham H.S. | 17 | 5 | 0 | 0 |
| Peam Chikong | 13 | 1 | 65 | 5 |
| Kok Pring H.S. | 19 | 1 | 28 | 0 |
| Total responses: | 125 (56 f) | 20 (10 f) | 1,016 (559 f) | 281 (139 f) |
| Response rate: | 45% | 50% | 26% | 7% |

²⁵ Under the NGS program design, each school receives a school animator who is employed by KAPE whose purpose is to coordinate all technical and material inputs with school managers and teachers.

²⁶ Each school already has a Telegram communication channel with the teachers, students, and parents and this was employed for distribution of the survey link.

²⁷ As all surveys were self-administered, the parent survey responses may be particularly problematic as parents may not have sufficient literacy or technology skills to be able to respond to the survey independently. Given the collective social nature of Cambodia, it is also likely that students collaborated on their survey responses and others stakeholders may have done so as well.

²⁸ This category of non-teaching staff was comprised of: 3 Principals, 4 Vice-principals, 2 Librarians, 3 Accountants, 3 Administrative staff, and 5 Career Counselors (who are also teachers). Of the 20 respondents, 18 had at some time or other functioned as a public school teacher. Their ages ranged from 28 to 53 years old.

²⁹ Most students were in lower secondary grades, few were in upper secondary level grades. The average age of responding students was 14.6 years old.

³⁰ Of the total respondents, an overwhelming majority were from a single school – 183 (65.5% of the total) from Sisowath H.S. No parent responses were received from Hun Sen Kampong Cham or Kok Pring H.S.

All of the 25 Mentors who enrolled in the program completed their degree requirements, graduating in August, 2020; however, only 22 of the graduating Mentors responded to the survey. Of the 22 respondents, 10 were female and 12 were male.

The survey topics and question counts for the five stakeholder surveys are as follows. The full surveys can be found in *TAF Ponlok Chomnes Emerging Research Grant Milestone 3 Report*.

Table 3: Survey question content

| Stakeholder | Question areas | No. questions in survey |
|---|---|-------------------------|
| Mentors | <ul style="list-style-type: none"> ▪ State of their readiness ▪ Qualities of a good Mentor ▪ Perception of their future career as a Mentor | ▪ 90 questions. |
| Teachers | <ul style="list-style-type: none"> ▪ General feelings about their job ▪ Communication ▪ School climate ▪ Difficulties encountered during actual practice ▪ Needs in terms of professional development ▪ Expectations and knowledge about mentoring | ▪ 108 questions. |
| Non-teaching staff (Principals and administrative staff) | <ul style="list-style-type: none"> ▪ Communication with teachers ▪ School Climate (leadership, academic excellence and outcomes, student behavior & discipline, educational style, physical environment) ▪ Perceptions of Teacher Ability & Commitment (ability, commitment, training) | ▪ 76 questions |
| Students | <ul style="list-style-type: none"> ▪ Perceptions of teachers ▪ Workload in class and homework ▪ Feeling about classroom management ▪ Communication between students and teachers | ▪ 44 questions |
| Parents | <ul style="list-style-type: none"> ▪ Communication and involvement ▪ The relationship between parents and school ▪ The quality of schooling in general ▪ The school built environment ▪ Child's behaviors and satisfaction | ▪ 42 questions. |

10.2.3 Qualitative methods: FGD and in-depth interview

Focus Group Discussions (FGD) were employed to gather information from Mentors about multiple aspects of their actual mentoring experience; for instance, what they did in their placement, what the Principals had requested of Mentors, how they felt in the delivery of their responsibilities, what challenges they faced, how they dealt with the challenges, and Mentor plans for the coming month. Mentors were also asked for their views on what they needed in terms of additional professional development. These FGDs took the form of monthly meetings with Mentors as a group for the period of January – April, 2021.

In addition to the monthly meetings with Mentors, NGPRC conducted in-depth interviews of four of the six participating School Principals in March, 2021 on an individual basis. The purpose of these interviews was to understand the general situation at the school and the performance of Mentors. The format for these interviews was a semi-structured questionnaire covering themes such as general situation of the school and performance of the Mentors.

10.2.4 Ethical considerations

This study was conducted by putting great attention on confidentiality and anonymity. All selected respondents were informed about objectives of the study and were asked to give their consent to participate in it.

For the surveys, to obtain valid consent, the study used an introductory statement at the start of each questionnaire. This study did not ask for the name of respondents in order to preserve anonymity. In addition to this, volunteer sampling techniques were employed, which meant all respondents were able to make decisions on their own whether or not to participate in the study. An external reviewer was assigned by TAF to review the design of the study and go through the survey questionnaires in detail to ensure consistency and that ethical implications were adequately considered.

10.2.5 Research Limitations

The following are situational limitations that readers should be aware of, as they constrained researchers' ability to optimize the implementation of the study's design:

- The research described in this study is limited to a small pilot study focusing on the practical training of 25 Mentors within the Master of Education in Mentoring program at NGPRC. This is a very small sub-set of potential Mentors nation-wide and may not be representative (though it is certainly representative of NGPRC).
- All student Mentors were drawn from NGS schools, an environment with an autonomous organizational structure that is quite different with respect to other public schools in Cambodia. Again, these schools are not representative of the norm in Cambodian public schools, so it will be important going forward to understand how the M.Ed. in Mentoring could be relevant for schools and educational institutions outside of the NGS framework.
- The original research design was adversely affected by the global Covid-19 pandemic that resulted in prolonged school closures in Cambodia necessitating a modified approach both to the Mentor practicum as well as to the NGPRC's ability to gather information for this research. Design short-comings made it difficult to answer all of the original research questions.
- All surveys were self-administered via electronic platforms; therefore, not all potential respondents would have been able to respond due to limited internet access and/or limited telephone/computer access. In addition, many potential respondents (particularly among students and parents) are likely to be semi-literate or not literate, thereby precluding many of them from participating in such a survey.
- The response rate from parents was very low generally; two schools only had single-digit parental respondents to the survey while another school comprised 66% of total respondents. Given these imbalances in respondent composition, it may be assumed that participating parents are those who are more actively engaged in the schools they are associated with, so the responses may be more optimistic than is representative of all parents across all target schools. These observations explain why there is limited information in this report about parental perspectives.
- There was very limited information supplied by stakeholders at two schools in particular: Hun Sen Kampong Cham or Kok Pring H.S.
- The surveys that were administered were "pre-surveys", i.e., surveys before any of the Mentors were placed in schools and able to perform their tasks. Since the interviews

and post-surveys were not able to be conducted, there is limited information available at this time in regard to Mentor performance.

- Besides the FGDs and Mentor reports coordinated by NGPRC, there does not appear to have been a highly rationalized system in place for monitoring the work of Mentors when they were first placed in schools, due to the newness of this intervention. And, there has not yet been any systematic review of the actual mentoring work conducted by the NGPRC-trained Mentors, though these are currently in progress.

10.3 Research findings

Findings related to the first cohort of the NGPRC Teacher Mentoring program are presented. These have been garnered through analysis of a survey given to Mentors, teachers, non-teaching staff, students and parents at the end of the program in August 2020; feedback from FGDs from Mentors after their first live experiences mentoring in March 2021; and individual interviews with four of the principals where Mentor graduates worked.

10.3.1 Stakeholder Understanding of mentorship

The majority of teachers (67.2%) surveyed in August 2020 had only a vague idea of what mentoring is. Most (38.41%) had received information about the mentorship program from NGPRC but a fifth of teachers only knew something about it via informal rumors/discussions among teachers.

In interviews with principals in March 2021, Director of NGS Kampong Cham HS (NGS-KC) and others stated that they asked the School Management Team to orient teachers to the concept of mentoring and have Mentors explain their roles and responsibilities. Despite these formal introductions, Mentors indicated that some people still did not seem to understand their role. The principal of NGS Kok Pring HS (NGS-KP) noted the specific need to make clear the difference between a Technical Team Leader³¹ and a Mentor.

Some school principals themselves did not seem clear about the roles of Mentors and how to best utilize Mentors' skills. Many Mentors spent time doing administrative tasks which were not an optimal use of their skills and were not necessarily a part of their job as Mentors from NGPRC's perspective.

The principal of NGS Prek Anchanh HS (NGS-PA) noted that teachers and management team may not understand this new system well since mentoring is a new concept to them. This lack of understanding might have affected their willingness and ability to get involved.

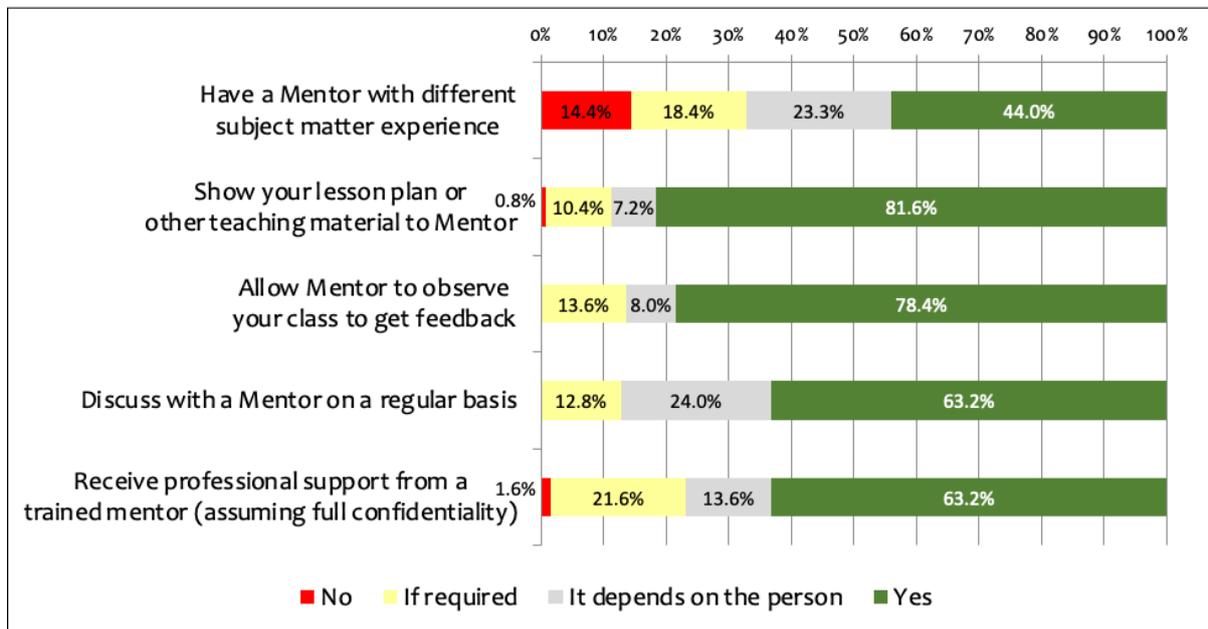
10.3.2 Teacher openness to mentorship

Success of mentorship depends not only on a clear understanding of what it means, but also on teachers' openness — openness to different sorts of Mentors, to sharing their material, classroom observations, to discussions about their teaching, and to receiving professional support.

³¹ Technical Team Leaders are part of the official MoEYS structure whereby a senior teacher is given a nominal leadership role among other teachers in their grade (at primary level) or subject (at secondary school level). Their role is to organize Thursday technical meetings, classroom demonstrations, and other CPD activities. However, these individuals receive little specialized training to fulfill their senior roles effectively, and in many schools, these team leaders actually do very little.

The following summarizes teacher responses to those very items. “If required” means that the teacher would do that activity if school policy required them to do it.

Figure 2: Teacher receptivity to mentoring



It should be noted that an “only if required by school policy” response is essentially a “no” since it means that the teacher would only agree if they had no choice. These responses indicate a clear need to “sell” mentorship as a benefit and opportunity for growth as distinct from monitoring or performance evaluation.

10.3.3 Matching: Institutions to Mentors

NGPRC stresses that mentoring is oriented around relationships; therefore, careful considerations are to be made about joining together institutions and Mentors as well as Mentors and Mentees.

As regards the first of these, in this pilot all Mentors were assigned to one of six New Generation Schools; and it should be noted that the schools where some Mentors were assigned were not necessarily a Mentor’s regular school.³² As discussed above, it was challenging for some Mentors to establish their role due to a lack of understanding of what their role was as well as poor familiarity with administrators and teachers in residence there.

In terms of logistics, program planners proposed having a placement fair to bring together Mentors and institutions. This notion was explored in interviews with principals. The principal of NGS-KP noted that a placement fair might not be feasible for schools in remote areas.

³² 2 Mentors were also assigned to training institutions; however, these Mentors are not the focus of this study.

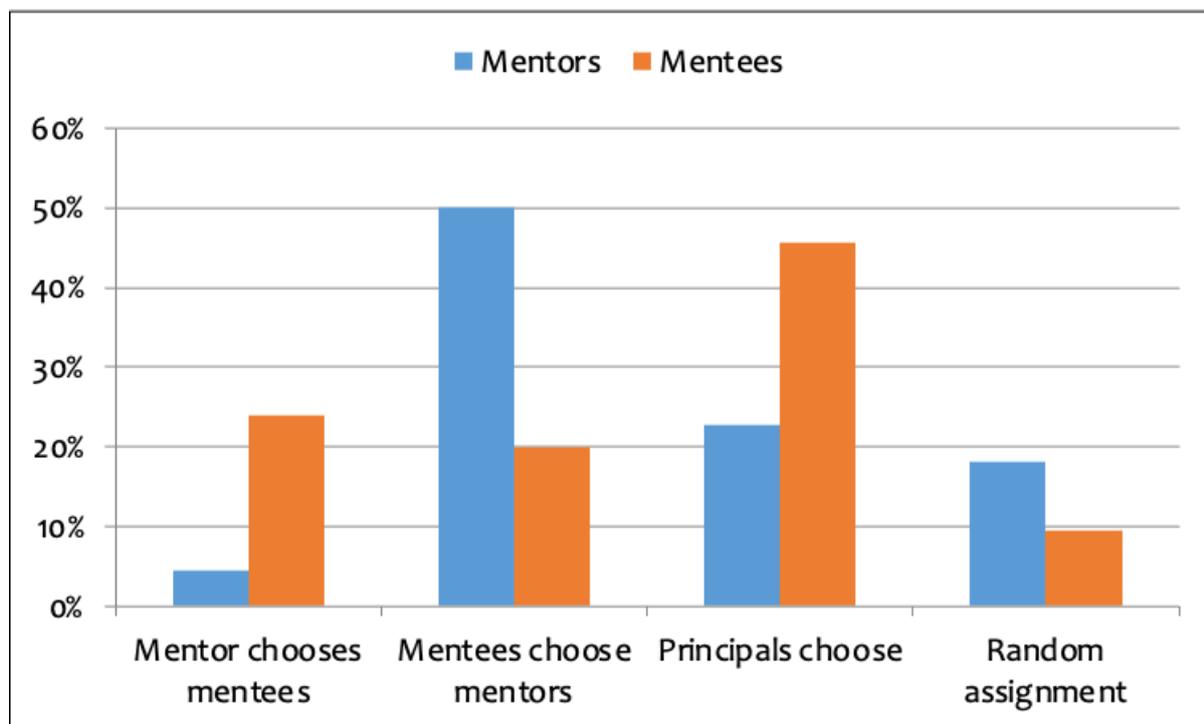
10.3.4 Pairing Mentors and Mentees

When pairing together Mentors and Mentees, there are many considerations to keep in mind: Mentor/Mentee preference, skills complementarity, subject area expertise as well as special considerations rooted in cultural structures and more.

Locus of decision-making

Program designers had planned that, to the degree possible, Mentees should be allowed to choose Mentors. Survey results revealed that Mentors agreed on this point. However, when the option of the Principal making the match was introduced, there was a divergence between the preferences of Mentors and teachers. For teachers, they overwhelmingly stated that they preferred if principals made the decision.

Figure 3: Mentor and Mentee preference for pairing process



Mentor assignments by subject matter

Mentors surveyed after their coursework said they were relatively confident to mentor someone about general pedagogy even in cases where they had no specific expertise in the subject that the teacher is teaching (3.36³³), but were more confident to mentor someone in their own subject area (3.91). Mentors were willing to seek cooperation from a Technical Team Leader to help with subject matter questions of a Mentee who teaches a different subject (3.5) and Mentors were willing to delegate if needed. Interestingly, these observations were truer for women (3.58) than for men (3.20).

On the part of teachers, a significant percentage of teachers (44%) surveyed in August 2020 saw the benefit of mentoring even from a person whose expertise was in a different subject area. Indeed, it was reported that updating in subject-specific matters was not even in the top 10 types of professional training teachers desired (see Table 7). However, 14.4% said that they

³³ Numbers in parentheses refer to scores on a Likert scale ranging from 1 ("not confident at all") to 5 ("very confident").

would not agree to accept a Mentor from a different subject area. The remainder said that they would only accept mentorship from someone with different subject matter expertise if it was required by school policy.

In the teacher survey, just under half were science teachers yet only 12.1% of candidates in the mentoring program had taught science. When interviewed after a period of a few months into their mentoring assignments, several principals noted the specific need for Mentors with expertise in science. This suggests that at least in specific subject areas like science, there is a need for mentoring directly related to subject area knowledge, at least according to the perceptions of school level stakeholders.

Assignment variables: experience and age

The survey showed that some Mentors have less experience than some of the surveyed teachers. Mentors had an average of 4.4 years of full-time teaching experience with a range of 1 year to 10 years spent teaching full-time. In the survey given to teachers, the average number of years of teaching experience was 7.4.

The surveyed Mentors were younger as well. The average age of Mentors was 28.7 while that of teachers was 30.2.³⁴ These age attributes reflect the tendency of younger teachers to be more attracted to work in a New Generation School while for Mentors, the NGPRC tries to select candidates who are under 35 years of age to maximize the number of years that they can spend in service.

In the March 2021 interviews, there was concern expressed by principals that Mentors should be older and more experienced than their Mentees. For example, the principal of NGS-KC noted that because some Mentors were younger and had less teaching experience than their Mentees, this might have made the mentoring process more challenging. It should be noted that Mentors did seem confident to mentor older, more experienced teachers (3.18), but this measure was lower as compared with other measures related to confidence.

Assignment variables: gender

Among the 22 Mentors surveyed, female Mentors were more confident than their male counterparts in mentoring a teacher of the opposite sex. On the other hand, as far as teachers go, the majority of teachers said that the sex of the Mentor did not matter. Both male and female teachers said that they would prefer to have a female Mentor; female teachers overwhelmingly expressed a preference to be mentored by a female Mentor.

10.3.5 Building Mentor-Mentee relationships

Building a relationship between Mentor and Mentee is critical to successful mentoring. Without such a relationship, mentoring can be experienced by the Mentee as a performance review or assessment rather than as professional development. The principal of NGS-PA said, “Building good relationships with teachers is really important for Mentors!” At NGS-KC, Mentors even created their own slogan: “Mentors are like close friends!” The majority of surveyed teachers were open to discussion with a Mentor and, it is worth noting, 24% said “It depends on the person,” which underscores the importance of relationships. Teachers also stated that they prefer a Mentor who can follow them for a long period of time.

³⁴ The teachers who took the survey were not all the same teachers who were mentored once that became possible. Still, assuming the survey was a representative sample, extrapolation about teaching experience and age for teacher participants is not unjustified.

Even before the mentoring activities commenced, surveyed Mentors seemed keen on the importance of the non-technical, “human” aspects of the Mentor-Mentee relationship. On questions related to their perceptions of what makes a good Mentor, high mean scores were reported for the importance of a Mentor’s ability to be trustworthy (4.23³⁵), to build relationships (4.14), to be open to ideas (4.14), to be committed to confidentiality (4.09), and to be active listeners (4.00).

10.3.6 Teacher-Mentor ratio

Given that the relationship between a Mentor and teacher must, by definition, go beyond coach and trainee, it is critical that the Mentor be assigned a reasonable number of teachers where they might forge and maintain some sort of intimate relationship of trust required to make mentorship effective.

The NGPRC draft Policy Framework for Mentoring recommends a ratio of between 10 and 15 teachers per Mentor. When surveyed, Mentors’ desired even fewer Mentees. All but one of the Mentors interviewed before they started mentoring preferred less than 10 Mentees. In fact, nearly half preferred 5 or fewer Mentees. When the Mentors were placed in schools, 69% of Mentors were assigned less than 15 Mentees.

Table 4: Number of Mentees per Mentor

| School (# of Mentors) | Number of Mentees |
|--|----------------------------|
| NGS-KC (3) | 9 |
| | 7 |
| | 7 |
| NGS-SSW (4) | 19 |
| | 16 |
| | 16 |
| | 9 |
| NGS-PL (3) | 8 |
| | 6 |
| | 5 |
| NGS-PA (3) | 33 |
| | 29 |
| | Mentor did not participate |
| NGS-PK (2) | 13 |
| | 13 |
| NGS-KP (2) | 11 |
| | 11 |
| Battambang Teacher Education College (3) | * |
| Phnom Penh Teacher Education College (3) | * |
| National Institute for Education (2) | * |

* Mentor positions at teacher training institutions are not yet well defined, so no information about Mentee counts is available in such institutions.

³⁵ Numbers in parentheses refer to scores on a Likert scale ranging from 1 meaning “Strongly disagree” to 5 meaning “Strongly agree”.

10.3.7 Mentoring tasks

Because of the situation with online teaching during school closures, findings related to several areas of inquiry were not able to be obtained; however, much can be learned from the time Mentors were able to spend at schools.

The FGDs summary document details the work of the Mentors doing expected tasks, e.g., helping teachers with work plans, lesson plans, assessments, as well as other tasks needed to facilitate school operation during COVID-19 school closures, e.g., online teaching, ICT support (e.g., producing videos and doing video editing for teachers), and performing administrative tasks.

Below is a comparison of the program’s definition of typical mentoring tasks with what was reported to be performed by Mentors.

Table 5: Primary tasks of a Mentor and related tasks performed by NGPRC-trained Mentors

| Typical mentoring activity category | Reported activity |
|--|--|
| Classroom observations followed by post-conferences | <ul style="list-style-type: none"> Conducted classroom observations and provided teachers with feedback |
| Consultations to prepare lessons and other teaching activities | <ul style="list-style-type: none"> Helped teachers with completing work plans and timesheets Checked teachers’ lesson plans, test plans and tests Helped teachers with test preparation and analyzed test items Checked question bank and tests Standby and helped teachers with video editing Check teachers’ folders |
| Co-teaching (intended to build up the skills of the Mentee not to replace him/her) | <ul style="list-style-type: none"> Teaching: Mentors were given their own classes to teach which did not involve their Mentees. They taught online, took attendance and contacted parents for information, taught students’ life-skills and followed up, and produced teaching videos for students to learn during school closure caused by Covid-19. |
| Classroom Demonstrations (Mentors demonstrate new techniques) | <ul style="list-style-type: none"> -- |

Table 6: Other tasks of a Mentor and related tasks performed by NGPRC-trained Mentors

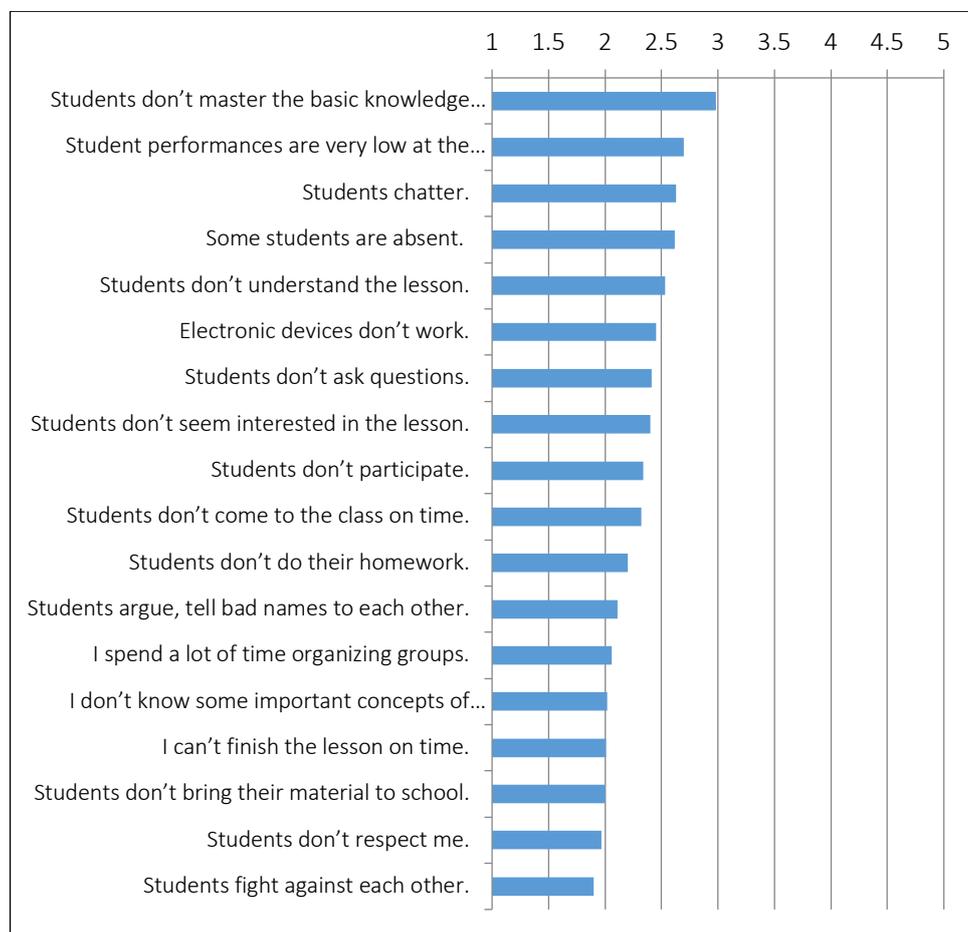
| Typical mentoring activity category | Reported activity |
|---|---|
| Conducting workshops and other training sessions (in assigned school or outside) | <ul style="list-style-type: none"> Provided teachers with ICT support Provided training to non-NGS teachers in 21st century teaching methods Participated in workshop concerning club preparation organized by KAPE |
| Writing articles to answer questions raised by teachers during interventions | <ul style="list-style-type: none"> Wrote monthly report on mentoring work to submit to school principal Wrote schools reports |
| Animating professional teams through social media or physical presence | <ul style="list-style-type: none"> Involved in professional learning community (PLC) with teachers (technical meetings with teachers) Mentors were involved in various school development activities, i.e., attending a school development workshop, joining in school evaluations, and attending monthly meetings with management team and teachers. |

Mentors were involved in other activities as well such as the following:

- Introduced the school-based mentoring to teachers
- Provided information for teachers regarding teacher career path
- Organized a meeting with technical team leaders to discuss teacher career path
- Helped facilitate Khmer and English Reading Competition
- Led Caribou math contest

Due to the nature of online teaching and related limitations, Mentors were not able to help teachers in some critical areas. Below are results from teacher surveys about some of those areas: difficulties teachers experience in the classroom. Under normal circumstances, an effective Mentor might engage in assisting a teacher with those types of issues, especially a new teacher.

Figure 4: Teacher difficulties in actual practice *



* Teachers were asked to rate the seriousness of each of these issues for them by using a five-Likert scale with 1 meaning “not serious at all” to 5 meaning “very serious”.

10.3.8 Mentoring challenges

Due to school closures and online teaching, there were unique challenges faced by this cohort of the NGPRC program so that they could not do some of the things they were trained to do. As reported in Mentor FGDs, it was difficult to do some of the tasks related to mentoring in an online teaching environment. Classroom “observations” were limited and did not occur under normal circumstances in a face-to-face environment. Many teachers did not have the time to invest in the mentoring process. For instance, it often took significant time and effort to make

appointments with teachers as they were struggling with managing new technologies when engaged in online teaching.

Also, there were unique challenges to do new things that were not a part of the mentoring program, e.g., train teachers how to create videos, upload files to Google Drive, use the Zoom online video conferencing tool. While the environment and timeframe evaluated in this study were quite unusual, the experiences reported here represent what will likely be key challenges faced by Mentors in the future.

Use of Mentors

Documents produced by NGPRC were quite explicit in stating that Mentors should not be used as substitute teachers or to take on roles not related to mentorship. The draft Policy Framework went as far as to specify that their teaching responsibilities should be limited to not more than one-third of their total working time to allow maximum time to focus on mentoring.

From Mentor FGDs and NGPRC informal communication, it is apparent that Mentors were, indeed, put to work doing administrative tasks generally not related to mentoring or expected of Mentors, at least part of the time. The most often reported situation was of school administrators offloading work onto the shoulders of Mentors. This phenomenon could explain the unwillingness of half of the principals interviewed to confirm the success of the mentoring program *yet* at the same time these principals requested that Mentors be assigned to their school again. This suggests that the ‘bureaucratic imperative’ is very strong in the Cambodian education system, even in New Generation Schools, which are very anti-bureaucracy in their avowed philosophy. The pronounced drift toward bureaucratic uses of Mentors, which can only undermine their ‘education quality imperative’ is a serious problem that is likely to be even stronger in a non-NGS setting.

Workload

Careful thinking went into NGPRC planning and recommendations to control workload for Mentors, as their dual role as Mentors and teachers presents a danger that they will become overloaded. Though Mentor activities and roles were not typical during the period under consideration, issues with workload did indeed present themselves.

Mentors reported that their workload was not sustainable and in FGDs some even mentioned considering quitting their job. Part of this was due to teachers needing special assistance due to gaps in ICT knowledge — gaps filled by Mentors who had already experienced online teaching via their own studies in the NGPRC program. Also, at issue was transfer of work responsibilities of some school staff to the Mentors.

Physical space considerations

In FGDs, Mentors also noted the difficulty in running PLCs because there were not enough rooms on the school campus. Space issues were also noted by principals. They reported that it became clear that Mentors need a physical space where they can work, especially to meet with Mentees confidentially. The importance of confidentiality was important to Mentors and teachers, according to the survey given before the practicum. At NGS-KC, Mentors had to use the office of the principal for private meetings. The principal of NGS-KP noted that Mentors did have a space but it was a challenge because it was too small. At NGS-PK, Mentors did have their own sufficient space and the principal said this helped them to their full potential with maximum effort and motivation.

10.3.9 Monitoring

Mentors noted that, in some cases, both teachers and administrators were lackluster in their engagement in mentoring and there was no monitoring system in place to correct for this. Some teachers worked around the process, only performing well when monitored, made the test plans after making the tests, or similar activities, which showed they had not bought into the processes and benefits of mentoring. Some teachers rarely participated and some never participated at all. Mentors did write monthly reports for principals; however, these did not necessarily result in an increase in teacher engagement.

Mentor monitoring was not performed during this time period. Mentors apparently gave information to principals via (confidential) written reports about Mentees and participated monthly in FGDs with NGPRC staff. However, feedback to Mentors could not be provided due to the lack of formal oversight.

10.3.10 Program effectiveness

Principals' level of satisfaction

One way to assess program effectiveness is to ask authorities who are working with Mentors about how well they worked in the school environment. Key Informant Interviews (KIIs) were used to solicit this information from school principals. All components from KIIs with principals — communication with teachers, school climate, teacher ability and commitment, teacher training, and style of the school — elicited a positive response from principals. If true, this would enable and support the effectiveness of mentoring performance. Principals also responded that teachers should be trained in more skills such as teaching methodology, professional ethics, ICT in teaching, and how to conduct research. In sum, the following recommendations were made by school principals:

- Two of four principals (NGS-PK and NGS-KP) were strongly satisfied and the others (NGS-KC and NGS-PA) were reluctant to confirm their full satisfaction, as there had not been enough time to assess the effectiveness of the mentorship program.
- All four principals interviewed wanted Mentors back again.
- According to the principals, all teachers were happy to have Mentors, especially those at NGS-KP.

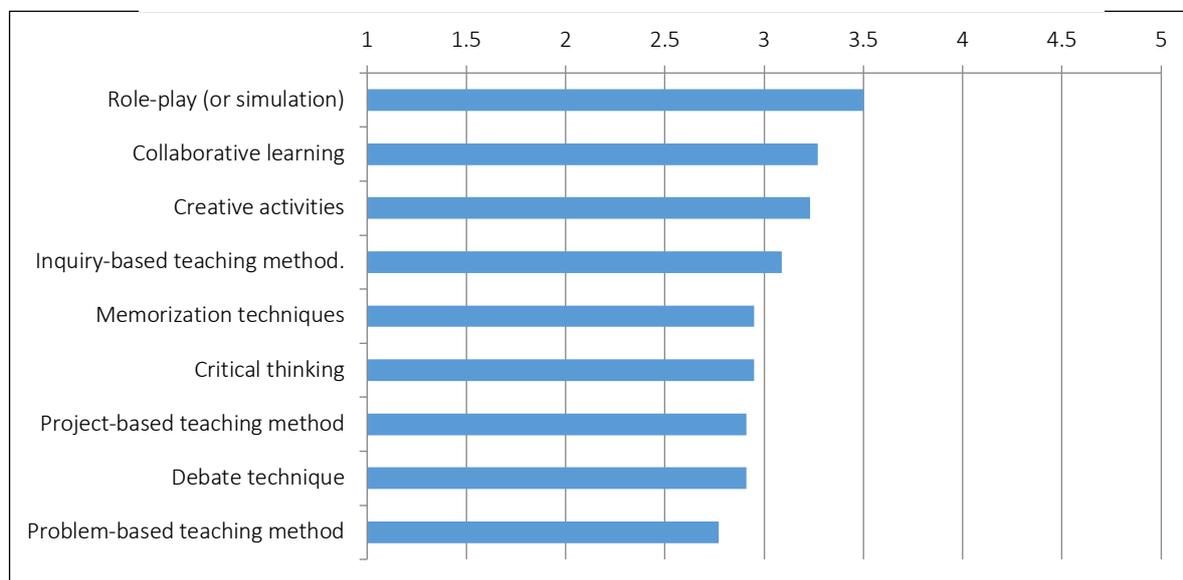
Mentor confidence and self-reported strengths

A second way to assess program effectiveness was to consider the level of confidence that graduates of the program had to do the job that the program has prepared them to do. At the end of the program, just half of Mentors expressed feeling confident/ready to be a prospective Mentor. A lack of confidence was mostly attributable to feeling insecure about teaching methodologies among other things.

Mentors were asked about challenges that they anticipated will occur during their work. Those challenges mostly include things relating to their relationship with their Mentee: building trust and good communication, working with defensive teachers and those with fixed mindsets, working with old and experienced teachers who do not want to make changes, and whether teachers have the time and determination to work collaboratively with them. Mentors have concerns about their own workload (having to do lots of administrative tasks and not having enough time for classroom observation and giving effective feedback) and general concerns about adapting to a new working environment and fitting into a role that is quite new for them. In terms of technical knowledge, they are concerned about their lack of content knowledge, a possible inability to solve Mentees' problems, as well as mentoring teachers in subjects where

they have little expertise. Noteworthy is their lack of confidence about teaching methodology, since one of the entry requirements to enroll in NGPRC is multiple evidence of superior teaching ability (e.g., teaching demonstrations are part of the entry requirements to the M.Ed Program). The figure below summarizes Mentors' confidence in demonstrating various teaching techniques to teachers.

Figure 5: Teaching techniques that Mentors feel confident to provide*



* Mentors were asked to rate their confidence in demonstrating a lesson featuring each of these by using a five-Likert scale with 1 meaning “not confident at all” to 5 meaning “very confident”.

Mentors' feelings of preparedness might also relate to an apparent disconnect between teachers' professional development desires and levels of confidence of Mentors in particular areas. This is evident in the survey given after the program which examined self-reports from teachers about their professional development needs and Mentors' self-reported strengths. For example, improving content area knowledge was not in the top ten desires expressed by teachers but it was the area that Mentors felt most confident about. Teachers' most desired area of upgrading was in creating assessments, something not listed in the top ten list of Mentor strengths. The only clear match relates to explaining lesson content which was 8th for teachers and 2nd for Mentors.

Table 7: Teachers' needs versus Mentors' strengths

| Teachers' most desired professional development | Mentors' self-reported support type strengths |
|---|--|
| 1. How to design assessments (4.22) | 1. Improve content area knowledge (3.91) |
| 1. How to improve student memory (4.13) | 1. Give clear explanations of content (3.73) |
| 2. ICT in education (4.12) | 2. Organize student work (3.73) |
| 3. How to improve the critical thinking of students (4.06) | 3. Recommend/provide teaching material (3.64) |
| 4. IBL (Inquiry-based learning) how to organize research work for my students (4.06) | 4. Organize their work at home, e.g., prep, corrections (3.64) |
| 5. How to improve student creative thinking (4.02) | 5. Organize classroom routines (3.59) |
| 6. PBL (problem-based learning) how to improve problem-solving skills (4.02) | 6. Develop good lesson plans (3.59) |
| 7. How to give explanations about the content of the lesson (3.99) | 7. Help with voice and body language (3.55) |
| 8. How to plan the school year (3.99) | 8. Help Mentees work collaboratively (3.55) |
| 9. How to organize work groups (collaborative learning) (3.98) | 9. Conduct a role-play (3.50) |

Teacher needs

A third way to assess program effectiveness was to consider the extent to which Mentors are able to meet the felt needs of teachers. Interestingly, Mentors generally felt less confident in those areas where teachers self-reported that they needed professional development:

Table 8: Teachers' needs and Mentors' confidence in those areas

| Teacher's self-reported professional development priorities | Mentor's confidence rank (out of 31) |
|---|--------------------------------------|
| 1. Assessments | 24 th |
| 2. Improve student memory | 27 th |
| 3. ICT in education | 15 th |
| 4. How to improve the critical thinking of my students | 28 th |
| 5. IBL (Inquiry-based learning) how to organize research work for my students | 23 rd |
| 6. How to improve student creative thinking | Not assessed |
| 7. PBL (problem-based learning) how to improve their problem-solving skills | 31 st |
| 8. How to give explanations about the content of the lesson | 3 rd |
| 9. How to plan the school year | 22 nd |
| 10. How to organize work groups (collaborative learning) | Not assessed |

The survey suggests that, based on self-reports, areas of focus for the NGPRC Mentoring Training program should be problem-based learning, critical thinking, creating effective assessments, and planning the school year since Mentors lacked the most confidence in those areas and they were identified by teachers as priority areas for development.

It should also be noted that some technical areas that were identified by teachers as important for their professional development are often not priority areas identified by research on Cambodian students' educational needs nor are they priority areas cited by MoEYS, e.g., improving student memory.

In addition, researchers would like to point out that Mentor confidence rate might very well have improved after their experience of mentoring. For example, it stands to reason that confidence in ICT increased after Covid-19 school closures forced teachers, and their Mentors, to become intimately familiar with new technologies for online teaching.

Finally, teacher professional development desires and Mentor strengths, both self-reported, might not hit the mark as far as student needs go. One of the highest rated feedback measures by students was that teachers explain the lesson clearly (4.47) yet teachers reported that they needed help in that area.

Teacher satisfaction

A fourth way to determine program success was to ask teachers how they felt about the mentorship they received. While teachers were not queried after their mentoring experiences, it is important to note that teachers are ready not only for professional development but also for *encouragement* to remain in the teaching profession — an instance a role of a Mentor that goes beyond “coaching”. When surveyed, only 11.2% of teachers had a negative feeling about their career and 87.2% said they are “happy when they enter the classroom”, but a quarter of teachers said that they think about quitting, at least from time to time. Those citing these

feelings apparently wish for better pay, have different ideas about what career they want, say that the job is difficult, or that they are not suited for it, and others for personal reasons.

Mentor retention

A fifth way to determine program success was to consider the commitment and longevity of the program's "outputs": Mentors. Part of the success of a program should be that it is creating lifelong Mentors who will remain in the Cambodian formal education system and who will work to support the improvement of teacher quality in Cambodia. In this regard, it should be noted that 50% expressed a desire to work at different places (for at least a few years) and 59% of Mentors have plans for another career after being a Mentor. Those who expressed a desire to explore other jobs mentioned wanting to have new experiences and learn new things; those uninterested mostly spoke of security. Regarding changing jobs, the majority of responses related to jobs with higher income or prestige.

It should be a concern to NGPRC that newly graduated Mentors express a desire to work elsewhere or leave mentoring. NGPRC should explore this further as it is a concern for the sustainability of the program and for embedding mentoring as an essential part of the formal education system.

Mentor ongoing support needs

Mentors were asked if they still need continuous support from NGPRC when they work as a Mentor at their target school. The responses showed that 90.9% of the Mentors need the support from NGPRC while only 9.1% say that they do not need the support from the center. For those who answered "Yes", they listed several kinds of support that they would need from NGPRC:

- Workshops on new teaching methods and ICT
- Help using the *Observic*³⁶ program
- Training in test development and analysis
- Emotional support
- Research support
- Technical support
- Problem solving
- Training in new strategies dealing with people
- Counseling for work-related problems
- Help dealing with serious issues raised by their Mentees that they find it difficult to cope with
- Short trainings or workshops to reflect and deal with challenges where Mentors cannot find appropriate solutions
- Administrative work when Mentors want to change their job
- Continuous professional development

10.3.11 Parental engagement

Overall, parents were enthusiastic and positive about the school environment and their children's learning opportunities; however, there are two points that bear further scrutiny by the program. The first point is that 10 of 160 parents said that they did not know how to help their children study. While this number may seem small, the problem is not: it is not that these parents *are not* actively engaged in their children's learning; it is that they feel they *cannot* be. It suggests that Mentors should be engaged in working with teachers to develop creative and practical ways that parents can be engaged in promoting learning for their children. More active

³⁶ This is a cutting-edge Mentoring Software that Mentors learned about during their Master's Degree Program.

engagement with communities and families will ensure a solid ecosystem in which children greater potential to thrive.

Secondly, parents expressed very strong agreement related to their trust of the school. While this might appear commendable, in fact caution is necessary in unpacking what this means. There is considerable literature written about how the socio-cultural norm of Cambodian parents ceding their responsibility for their children’s education to schools/authorities. This is not what the government and New Generation Schools aim to do. The goal is that all stakeholders are engaged in the education of children. This suggests that Mentors would do well to help teachers work to promote parental engagement in the education of their children in real and meaningful ways.

10.3.12 Student response

Surprising to NGPRC, the response to the student survey question about if teachers ask students to pay for “extra lessons” was 2.17. This indicates that, indeed, there are teachers who are asking students for *rien khua* money. This directly contradicts the NGS policy and NGPRC should bring it to the attention of School Boards for action. As regards mentorship, this confirms the importance of ethics as part of the program curriculum.

10.3.13 Constraints in research findings as related to the original research questions

While this research study could not address original research questions in full due to Covid-19-induced challenges, some findings from this study do indeed inform those questions.

Studying the effectiveness of teacher mentoring

One research question asked, “What Are the Requirements to Study the Effectiveness of Teacher Mentoring in Comparison to Traditional Methods of Teacher Training in Cambodian Context?”

This study does not provide data to illuminate the specific issue of comparing a school-based mentoring system to traditional methods of teacher training; however, the research question specifies one particular type of measure which was central to current efforts. The research question asks in particular: “How to prepare, conduct and analyze comprehensive surveys among all the relevant stakeholders in the education system, including Teachers (both Mentees and non-Mentees), Mentors, School Principals, School Administration Staff, School Advisors, Students, Parents and Policymakers?”

As articulated, the question echoes the importance put on surveys by the researchers. It should be noted that the analyses that were planned for this NGPRC Teacher Mentoring pilot study included monthly meetings with Mentors and Mentees, daily check-ins with Mentors and NGPRC staff, and student reports — some of which were conducted, some of which were not. Researchers prepared post-practicum surveys for all stakeholders; however, because of the adjusted practicum activities, post-practicum surveys were not given. Comparing pre- and post-survey responses was not possible.

There was not enough time to perform critical analysis, e.g., correlations within stakeholder groups, correlations across stakeholder groups. For instance, the following questions might be interesting to explore:

- Were teachers with more experience more likely to state, “helping students with memorization techniques” as a desired professional development topic? This might suggest that the mentoring training program include training Mentors how to share with Mentees research about gaps in students’ skills and 21st century educational needs, e.g., critical thinking is more important than rote memorization these days.

- Were Mentors with less teaching experience more likely to score lower on measures of confidence with mentoring tasks? What types of mentoring tasks? What might this suggest about program adjustments, Mentor support, etc.?

Requirements for training teacher Mentors

A second research question was “What Are the Requirements for Training Teacher Mentors for Cambodian Formal Education System?” For many of the sub-questions, this research does provide helpful information.

- What are the criteria for Mentor recruitment?
 - Interviews with principals spoke to the need to recruit Mentors with more experience than Mentees. Arguably, this is something that would be echoed by participants in mentoring programs generally.
 - Principal responses suggest that mentoring programs might query school leadership regarding if there is a need to recruit Mentors with experience in areas of high need.
 - Current findings that some Mentors are considering leaving the profession or principals’ observations that Mentors should have more experience have important implications for NGPRC entry requirements. The program desires younger candidates (because they are easier to train and do not have entrenched views about teaching) with only two years of teaching experience or more. But given the findings above, perhaps these requirements are too lax and more years of teaching experience should be considered to ensure that only candidates who are committed to the teaching profession be admitted.
- Does the mentoring program adequately prepare for the mentoring tasks that Mentors actually encounter?
 - This study revealed a possible disconnect between teacher self-reports of needed professional development and Mentor self-reported strengths. Principals also can shed light on development needs of teachers. This indicates the need for program coursework to reflect real professional development needs as reported or as measured through objective assessments.
- What are the criteria for selecting Mentees for the Mentors?
 - While this study certainly made Mentor and Mentee desires clear, it should be highlighted that cultural and situational variables ought to be examined, perhaps through interview or focus groups rather than close-question surveys.

This study was not able to inform the following questions due to the limitations in controlling variables, which would otherwise be required:

- What are the optimal types of classroom observations?
- What is the optimal number of classroom observations?
- What are the criteria for distributing Mentors to different schools?

Supporting effective teacher mentoring

A third research question asks, “What Are the Requirements for an Institutional Environment to Support Effective Teacher Mentoring?” The present research illuminates several of the sub-questions.

- How to prepare all the stakeholders, including school principals, teachers, administration staff, students and parents, in order to create an effective mentoring environment?
 - Interviews with principals found that at least some schools were inadequately informed about what mentoring is and how it works. Formal school-wide sessions might be supplemented by other communication avenues.
- What are the expectations and receptiveness from all the stakeholders regarding school-based teacher mentoring?
 - In the current study, receptiveness varied from school to school. Half of the principals of the schools where Mentors worked vocalized their support; half did not.
 - Because of research limitations, all stakeholders could not be queried about this particular issue.
- What is the role of Mentors in Professional Learning Communities, particularly in relation to Technical Subject Leaders?
 - This was not explored; however, one principal noted the need to distinguish Mentors from Technical Subject Leaders.
- What are the optimal teacher-Mentor ratios?
 - All but one of the Mentors interviewed before they started their practicum preferred less than 10 Mentees. In fact, nearly half preferred 5 or fewer. Yet, when they were placed in schools, 65% of them were assigned more than 10 Mentees.
 - Because of closures and online teaching, normal interactions between Mentor and Mentee were not possible; therefore, it is not clear if the best ratio was closer to the desired (as expressed by Mentors) or the actual Mentor-Mentee ratio.
- What is the optimal background of teachers to become Mentees?
 - Again, the data showed the need to have teachers with a background in subject areas of need is helpful.

This study was not able to inform the following questions due to the limitations in controlling variables which would otherwise be required:

- What are appropriate incentives for schools to host teacher Mentors?
- What are appropriate incentives for teachers to be mentored?
- What is the impact of practical training in the school environment?

10.4 Conclusions and recommendations

This study breaks new ground in the effort to better understand whether a formalized school-based mentoring system can function effectively in Cambodia's public schools. As this is the first school-based mentoring system ever piloted in Cambodia,³⁷ current findings create a milestone, the first of many it is hoped, about how to structure and establish school-based mentoring programs in Cambodia. Although the outbreak of the Covid-19 pandemic seriously affected this study's ability to answer all of the original research questions, it has nevertheless succeeded in generating evidence that can inform the evolution of the Mentoring Program at

³⁷ This is not to undervalue the mentoring efforts undertaken by other organizations such as VVOB; however, the NGS mentoring program is the only one where Mentors are school-based as permanent appointments.

the National Institute of Education and elsewhere in Cambodia. This includes needed changes in Mentor selection procedures to ensure only those with a high commitment to the teaching profession are selected; modifying course content in the Master's Degree Program on Mentoring to be more in line with teachers' perceived needs; and the serious risks that "bureaucratic drift" in Cambodian schools poses to quality-focused mentoring programs.

The institutional setting provided by schools that are participating in New Generation School education reforms³⁸ provides perhaps the most accommodating institutional environment of any public school in Cambodia to support a mentoring program. Thus, if a school-based mentoring system cannot succeed here, it is likely that it cannot succeed anywhere in Cambodia's public school system. This raises the stakes considerably for the education system to demonstrate that a school-based mentoring system of the kind proposed by NGPRC can succeed in promoting Continuous Professional Development for teachers in a systematic way. The stakes grow even higher when one considers the high national profile of the Mentoring Program and its imputed role as a catalyst for change in such documents as the *Cambodia Secondary Education Blueprint 2030*³⁹ and others. Thus, the importance of this initiative and the present research cannot be understated.

Overall, researchers found that the effort to create a school-based mentoring system has quickly become established to the point where a sizable number of key actors in each school have accepted Mentors as a fixed feature of the NGS landscape and indeed many schools have actually provided Mentors with their own offices. Technical problems in implementation such as the workload of Mentors, how to best assign Mentees to Mentors, the technical preparation of Mentors, and other issues identified by researchers are probably all easily amenable to modifications in program design to realize greater efficiencies. What is more problematic are the ambivalent attitudes that Cambodian educators have towards a Mentor's role in the school, since this is an entirely new and untried staff position. In general, many school-level stakeholders do not yet know what to make of Mentors. School principals tend to fall back on their bureaucratic instincts and often see Mentors as just one more bureaucrat in the school office who can help them deal with the piles of paperwork generated by the MoEYS paper mill. Teachers, on the other hand, tend to fall back on their ingrained views of inspectors and other members of the 'thought police' and see Mentors in this light. Yet the position of Mentor has been conceived to be neither that of a bureaucrat nor a policeman. Since attitudinal perceptions create their own reality, it is likely that Mentors will likely continue to struggle to establish themselves as an entirely new institutional entity with a constructive mission to turn school classrooms into dynamic places of learning. It will not be easy to change the attitudes of stakeholders along these lines and Mentors will no doubt need to display considerable diligence in establishing themselves in their new role.

10.4.1 Developing a more effective evidence base for effective teacher mentoring

The school-based mentoring initiative investigated in this study is fortunate to have an institution like the New Generation Pedagogical Research Center behind it, as it moves forward. The Center not only provides intensive training for Mentors and develops the policy framework to govern the initiative, but it is also well-equipped to do the research required to

³⁸ NGS Reforms are laid out in Point 14 of the 15-Point Education Reform Program inaugurated by MoEYS in 2015. These reforms provide New Generation Schools with high levels of autonomy and considerable amounts of special resources (both financial and material) to achieve high academic standards. Teachers are often competitively selected and receive incentives linked with a school's ability to maintain its accreditation as a New Generation School. Thus, the elements for a successful school are in place provided that the leadership and motivation of school personnel are up to the task.

³⁹ MoEYS, 2021.

generate an evidence-based foundation for the initiative's consolidation and replication. In order for this to happen effectively, however, it will be necessary to take a comprehensive and strategic view of future research designs required to develop a base of strong evidence regarding the efficacy of teacher mentoring initiatives in Cambodia. Below are some points to take into consideration to promote these efforts.

- **Systematic, periodic assessment:** It is necessary to periodically (and regularly) assess both mentoring practice and results: before (baseline), during (mid-term), and after (post) the intervention. This will produce comparative data to illuminate the effectiveness of teacher mentoring (i.e. a comparison is necessary to establish whether positive change has occurred). For instance, the present research effort included both pre- and post-surveys as well as interviews with focus groups. These should be used in continued program evaluation and to support future research.
- **Cross-section of stakeholders:** Data should be collected from a variety of stakeholders in order to produce a comprehensive picture of what is happening with mentoring. AND, surveys across stakeholder groups must be linked by subject matter to illustrate the full picture of a particular topic, e.g., ask *all* stakeholders about discipline practices at school.
 - As regards analysis, the findings presented in this report are based on analysis by stakeholder groups. It will be objective of future work to perform comprehensive cross-sectional analysis which would consider particular questions across the full five stakeholder groups.
Disparities among stakeholders might suggest differences in perception (e.g., parents and students), theory and reality (e.g., principals and teachers) or bias in the survey taker. These could suggest the need for follow up in a different setting as part of a qualitative analysis.
- **Mixed methods:** The original project design included use of mixed methods to include a greater breadth of qualitative instruments, as outlined in Section 3 (Research Methodology); however, as pointed out, for example, the prepared focus group interviews were not conducted for the findings in this report due to the Covid-19 related modifications (as explained in Section 1.5). This is important to be included in future program evaluation and supportive research activities.
- **Survey design considerations:** Biases in survey responses should also be carefully considered. In Cambodia, one of these is “social desirability bias” where respondents give answers that they believe are “correct”. Therefore, assessments must control for such bias by using, for example, *anchoring vignettes* wherein a story/example of a situation is shared and respondents asked what they would do in response or what would happen in that situation. For the original research design, the focus groups and interview questions were selected to address this issue; however, as noted above, the findings in this report do not fully include such consideration as these interviews were not conducted due to the modifications induced by the Covid-19 pandemic. This also is an important consideration for future program evaluation and research.
- **Correlations:** To understand teacher mentoring success, it is necessary to systematically look at correlations between key variables and performance, e.g., sex, age, location, job experience, subject matter expertise, etc. For instance, does the age/sex of a Mentor relate to how they were perceived by a school principal? Or to the

level of confidence they express going into their mentoring responsibilities? A part of comprehensive cross-sectional analysis is to consider correlations. This is an important consideration and objective for future research.

- **Sustainability of change:** Teachers need to be assessed as to whether they continue to implement and grow based on what they learned from their Mentors. This suggests the need for longitudinal surveillance.

10.4.2 Continued improvement of the mentoring program

A set of carefully designed and well-sequenced assessment tools can be employed to provide continuous feedback into programming, e.g., courses, activities, duration, timing, program logistics, practicum details, and so forth.

- **Assessments:** A schedule for the administration of assessment tools needs to be clearly defined at the start of the program. Similarly, feedback loops must be clearly established.
- **Mentee's needs:** Mentees' own self-reports of their stated needs should be considered carefully and ensure that (1) the program includes content that prepares Mentors to address those needs with teachers, (2) Mentors confirm in their own survey their readiness to address those particular needs, and (3) Mentors exhibit through their practicum and after their ability to address those needs.
- **Dynamic, responsive curriculum:** Likewise, the observations of teachers about their classroom experience/challenges should inform teacher mentoring programs. In this research for instance, teachers responded that the top 5 issues affecting learning that they confront in their classrooms are: (1) students talking during class; (2) students do not master basic knowledge; (3) student do not do their homework; (4) students do not understand the lessons; and (5) some students are frequently absent from class.
- **Technology:** New technologies should be incorporated into the training program and encouraged for use in the practicum. New technologies are emerging all the time, so it is important that the trainers of mentoring programs are keeping up to date in order to provide their students with creative options for pedagogical improvement.
- **Looking outwards and inwards:** All education improvement programs can be improved by considering external research and global best practice. And, it is very necessary to contextualize external inputs to the unique Cambodian situation.
- **Scalability:** The first cohort and survey participants involved people associated with New Generation Schools in one way or another. Careful consideration needs to be made when applying results from the findings in this report beyond the NGS network, given the highly accommodating institutional environment implicit in such schools, which is not typical of other public schools.

10.4.3 Institutional-level recommendations

Mentor Workload

During monthly meetings, many Mentors mentioned the problem of their workload. To prevent the exploitation of Mentors by those in authority, it is necessary that the Mentor contract specifies time ranges for the main activities that Mentors can undertake:

- Teaching
- Classroom observation and counseling
- Administrative tasks
- Standby, lesson preparation and corrections of assessments

It is to be noted that, while Mentors can work in their office at school in order to be available for their Mentees, this standby time should not be filled systematically by the school principal. There is a good reason why teachers don't teach 40 hours a week. They need time to prepare their activities and thus should have some flexibility in their time table. A 40-hour figure could be reasonable only if it understood as the grand total for all the above-mentioned tasks.

Mentor tasks

A strict cap should be put on the activities that are not directly related to mentoring. It is apparently tempting for the school administration to use Mentors as free administrative workers, for tasks that are more or less useful (meetings, reports, checking teacher administrative documents, etc.).

A serious complaint has been made by Mentors in several schools about the lesson plans that they have to check. It is legitimate to ask Mentors to provide pedagogical feedback on lesson plans when it is useful. However, the role of a Mentor is not to enforce an administrative rule. Teachers must not write lesson plans to appease the school director, but to improve their lessons. Excessive administrative scrutiny has induced some absurd practices, since many teachers write their lesson plans after the lesson is finished. This is not to say that Mentors should not undertake administrative tasks. Their role is to support the life of the school in general. However, a good balance must be found to satisfy all the stakeholders.

Unexpected pedagogical activities

It is expected that Mentors contribute to the life of the school in many ways. Therefore, we should not limit their activities too strictly. Just as we expect ordinary teachers to contribute to special events, such as the Caribou Math Contest, or science fairs, it is reasonable to expect that Mentors would extend their counseling activities beyond classroom observation, and take the lead when the school is trying to implement innovative educational approaches. When all the teachers have to shift their teaching to an online setting, it is logical that Mentors evaluate the new activities, observe remote classes and provide feedback to the teachers.

We should notice, however, that the new Mentors have not been trained specifically for such activities.

It is essential that the Mentors and school principals have a way to provide feedback to the training center, in order to improve its syllabus and include the supplementary activities that

might become common in the near future. For instance, the Mentors of the first cohort have strongly expressed the need to reinforce the training on student assessments. One school director has suggested including school management in the curriculum.

If such a revision of the syllabus is deemed impossible or not cost-effective, for instance if the new activities concern only specific schools (question banks in NGS) or a limited time (video production during the Covid-19 crisis), it is important that the Mentors are given a platform to share challenges and solutions. The monthly meetings are not enough to do it. Because of time constraints, they rarely go deeply enough into technical considerations, and they might happen too late for the Mentors who are looking for quick solutions. Also, technical issues do not always concern every Mentor, and the faculty staff of NGPRC can provide support, but not on a daily basis. A recommend would be to create an online forum, where Mentors can submit their questions to their peers and other pedagogical experts.

Incentives for Mentors

It is the policy of NGPRC to provide incentives to the teachers and Mentors of the NGS program. In exchange, teachers and Mentors are expected to be fully committed to their mission and to renounce illicit advantages, such as the illegal fees that plague the Cambodian school system.

Unfortunately, those incentives have created expectations among non-NGS Mentors. It can create a sentiment of injustice for those who are assigned to a TTI or standard schools. Harmonization of the practices should be advocated.

Ongoing support for Mentors

Given that over 90% of Mentors expressed a desire for ongoing support, it seems necessary for the program to create realistic expectations for the type and duration of support that will be given to the Mentors. The goal is to foster Mentors to function independently, indeed to be able to support new Mentors themselves.

The program could do more to ensure that the Mentor PLCs set up and functioning through face-to-face interactions among peers and/or via an online platform for sharing experiences and ideas about mentoring.

10.4.4 Preparation at schools for embedding Mentors into schools

School Principals must be informed ahead of time about the concept of mentoring as well as key responsibilities of Mentors; and about the expectations for their involvement in supporting and enabling Mentors to be effective.

It is also very important that School Principals warmly welcome and introduce the Mentors, as well as explain their roles and responsibilities, to all teaching and non-teaching staff from the very beginning.

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CHAPTER 11

The New Generation School Initiative in Cambodia: Revisiting Its Effects on Shadow Education

By NHEM Davut

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Abstract

This article aims to address a puzzle of whether New Generation School (NGS) initiative has any impacts on the deep-rooted, vexing culture of shadow education in Cambodia. The purpose of the NGS project is to build good human resources with STEM knowledge, ICT, and 21st-century skills, all of which are the necessary commodities in this current fluid society. At the same time, it wishes to remove the ingrained culture of shadow education which is oftentimes offered from public school teachers to their own students. Thus, to realize the above objective, this paper reviews a policy document “New Generation School Operational Policy Guidelines, 2019” published by the Ministry of Education, Youth, and Sport (MoEYS) and other reports by Kampuchea Action to Promote Education (KAPE) organization. The analysis indicates that NGS has not entirely omitted students’ participation but has eliminated teachers’ engagement in shadow education—revealing its success in building teacher professionalism and effective school leadership, all of which are the complementary strands of school-level accountability and have been the conundrums in this context for many years. This article offers a nuanced understanding of shadow education as it steers the attention of policymakers and researchers in Cambodia and other contexts to look at the factoid of alternative assessments and school-level accountability—having implications on teacher and school leader professionalism and corruption—as the ways to penetrate shadow education.

Keywords

Cambodia, new generation school, education reform, shadow education, private tutoring, school accountability, and teacher professionalism

11.1 Introduction

Shadow education is typically known as “private tutoring.”¹ The use of the metaphor “shadow” signifies that shadow education occurs only when the public education system exists; meanwhile, its curriculum usually imitates that of the public education system (Bray, 1999a). Shadow education has been prevailing in several societies in the world (Bray, 2010; Mori & Baker, 2010); it has been prominently visible in some countries in East Asia (e.g., Japan, South Korea, and Taiwan) and gradually emerging in other regions such as Africa (e.g., Guinea, Mauritius, Morocco, Tanzania, and Zimbabwe), North America (e.g., Canada and the United States), South America (Brazil), and Europe (e.g., Germany, Romania, Turkey, and the United Kingdom) (Bray and Silova, 2006: 30). Yet, the provision of shadow education seems to be polarized in different societies. In more developed nations (e.g., Singapore, Hong Kong, or Japan), public school teachers usually do not engage in private tutoring because of the

sufficient payment (Bray, 2015); the causes of shadow education are primarily driven by learning competitions and high-stakes examinations (see, for example, Entrich, 2014; Yung, 2021). In less prosperous countries, private tutoring is generally offered by public school teachers who seek supplement incomes to compensate for their inadequate salaries (Bray, 2015; Kobakhidze and Suter, 2020). Unfortunately, this advent of teacher provision of private tutoring is more vulnerable to corruption (Dawson, 2010, 2011; Kobakhidze, 2014) and forced tutoring (Brehm and Silova, 2014; Kobakhidze, 2014).

Shadow education also has other detrimental effects including student workloads, household financial burdens and social inequalities (Brehm and Silova, 2014; Jung, 2018; Manzon and Areepattamannil, 2014), raising a challenge against the UNESCO's 1948 principle of "Education for All," (Bray and Kwo, 2013). This means while students are supposed to get access to knowledge for free, they have to spend money to perform well in the non-fee schooling system. Thus, shadow education pressures students from disadvantaged families who hardly or cannot afford private tuition fees (see Brehm et al., 2012). Without attending private classes, they might not learn well or compete with private tutoring students. In addition, shadow education is apt to have become a disposition to detach the public education from its real purposes, that is, "education as education of the public, for the public, and accountable to the public" (p. 1) and thereby contributes to the set-up of a threat to the public education, seen through the lens of two erosions: inner erosion, referring to pressures of performance standards (e.g., examinations); and outer erosion, referring to "the forces of privatization, marketization, or commercialization" (Biesta, et al., 2021: 2). Simply put, when pressures of competitions and standards (e.g., examinations, school admissions) have become intense, shadow education is always there to temper such tensions. This narrative can reflect that the public education is likely to be in jeopardy as educators are favourably disposed towards the notion of education as competitions or standards rather than a preparation for living in society (Tesar, et al., 2021).

In Cambodia, shadow education has existed in the literature since the late 1990s, a decade of the end of military conflicts (Khmer Rouge Regime: 1975–1979; civil war: 1980–1990s). As a war-torn country, Cambodia at that time had a financial shortage in education development. Teachers' salaries were low and private tutoring became another source of additional incomes for some teachers. According to a report in 1999, 20 schools in Phnom Penh city (among 33 primary schools) reported that some students received private tutoring from their own teachers; the figure of private tutoring was higher than that in rural areas (4 out of 44 schools). The cost of private tutoring was between 100 and 300 riels per session (Bray, 1999b). Recently, the landscape of shadow education has grown in scale. For instance, one study conducted on Grade 9 and 12 students in Siem Reap province reported that 81.9% of 1274 students attended private tutoring classes on subjects such as Mathematics (79%), Chemistry (68.8%), Khmer (60.1%), Physics (59.7%), Biology (44.2) and English (28.4) (Bray et al., 2016). The study also showed that most students took more than one subject (e.g., 2 subjects, 10.1%; 3 subjects, 16.9%; 4 subjects, 15.5%; 5 subjects, 17.1%) and the average cost was 500 riels per session.

As indicated above, the majority of the tutoring subjects were science subjects; this might result from the current education system, streaming the upper secondary school learning (Grade 11 and 12) into two: science track and social science track. And, the popularity of science subjects might be because of the higher rate of students registered in the science track (62.52%) than the social science track (37.48%), as a study reported (Ung et al., 2021). Surprisingly, more than 80% of the science-track students enrolled in non-science majors in higher education whilst less than 10% of students in the social science track switched to science majors (Ung et al., 2021). Perhaps, this agglomeration of students in the science track can be further elucidated by a stereotype² that students in the science track are smarter, more outstanding, or more

hardworking than those in the social science track (also see [Bray et al., 2018](#): 12). Hence, the above empirical data can suggest that the students' decision-making of learning tracks might not be mainly shaped by their learning goals and capacities but the stereotype intentionally created to attract students to register in the science track that has popular private tutoring subjects (e.g., Math, Chemistry, Physics, or Biology). In this sense, while the streaming system is basically exercised to group students into their learning abilities and interests, it has become another tactic for private tutoring marketing (also see [Exley, 2019](#)), inducing a deterioration in the public education in Cambodia.

In addition, research in Cambodia has also found that the vexing roots of shadow education are mainly the corollary of teacher unprofessionalism (see [Bray, et al., 2016](#); [Bray, et al., 2018](#); [Soeung, 2021](#)) and hierarchical corruption (see [Dawson, 2010, 2011](#)). That is, although the heavy public school curriculum, high-stakes examinations, and insufficient salaries have been regarded as the menaces (see [Brehm and Silova, 2014](#); [Brehm et al., 2012](#)), there are also other factors, namely that, pressures from teachers who actually employ certain strategies to directly or indirectly impel students to seek private tutoring. For instance, some teachers withheld curriculum contents or exercises for private tutoring classes ([Bray, et al., 2018](#); [Soeung, 2021](#)). Sometimes teachers performed less enthusiastically in teaching during the public classes ([Bray, et al., 2018](#)). This persistence of shadow education in Cambodia also derives from poor school leadership (see [Dawson, 2010, 2011](#); [Bray, et al., 2018](#); [Bray et al., 2019](#); [Brehm, 2021](#)) and corruption as [Dawson \(2010, 2011\)](#) called "a web of corruption system." According to Dawson, some tutoring-generated fees went to school officials and other higher-level officials, establishing a hierarchy apparatus that permits the culture of private tutoring to flourish. In other words, with support from the higher-level officials, school leaders seem to ignore the practices of shadow education as they all gain benefits from private tutoring. Moreover, instead of seeing shadow education as a pejorative phenomenon, school principals also tended to value it because of its guise being more ostensibly in line with the demands of students and teachers (see [Bray, et al., 2019](#)).

As the above narratives reveal, shadow education has received wider attention from researchers in various contexts and also in Cambodia. The literature from the Cambodian context suggests that the professionalism of teachers and school leaders seems to be under a threat posing concerns on the equity and quality of the public education. Concurrently, the instituted corruption has facilitated such (above-mentioned) unethical practices. In this regard, NGS project is one of the Ministry of Education, Youth, and Sports' (MoEYS) efforts in combatting poor education quality and social inequalities, partially originating from shadow education. The purpose of the NGS project is to offer students with high quality of education and abolish the culture of shadow education in the context. Thus, with the focus on shadow education, this paper analyzed NGS policy (2019) and other reports that can offer rich insights regarding the situations of shadow education in Cambodia. Since the NGS initiative is implemented by (KAPE),³ the annual reports by KAPE were used for the analysis. The next section offers a brief summary of the NGS project, after which the paper presents the discussions on the impacts of the NGS on shadow education, followed by the conclusion.

11.2 An overview of NGS in Cambodia

In the last two decades or so, Cambodia has experienced many education reforms, that is, “child- friendly schools approach, primary school clusters, district training and monitoring teams, mother- tongue education, Khmer e-Learning, school-based management, or New Generation Schools (NGS)” (MoEYS, 2021), p. 3). These reforms indicate the government’s enterprises in enhancing education quality that has been subject to diverse interpretations. Among these reforms, NGS project, which was established in 2015 and is a joint project between the MoEYS and KAPE, has come to the fore because of its success over the years. Currently, there are about ten NGSs, being led by KAPE. Hence, this section of the paper discusses some core principles and achievements of NGS.

Key principles of NGS

According to the policy document published by MoEYS (2019), NGS is a school autonomy model. This model has gained a high profile in many social contexts as it allows schools to act inde- pendentlly to realize objectives developed by both schools and a central administration (Bo, 2021). In this regard, NGS leaders are supposed to bring innovation and guarantee the high-standard performances of teachers and staff (MoEYS, 2019). For instance, school leaders have to ensure that teacher performances comply with the regulations of incentives (\$100/month in rural areas and \$150/month in the city), non-private tutoring code, or teacher career path conditions. Besides, NGS utilizes up-to-date technology in teaching and well-developed curricula that are oriented to STEM subjects, ICT, or 21st-century skills. Teachers are also expected to use technology (e.g., laptops and slide projectors) in teaching. In this fashion, NGS consumes considerable investment (Chea and Chen, 2021). Yet, the NGS schools’ access to government resources is dependent on whether their performances fulfill the expected-standard performances (MoEYS, 2019). In other words, the MoEYS will no longer offer support to NGS schools if they fail to satisfy the agreed regulations of their performances. This is because NGS schools are annually reviewed and evaluated by a national oversight board to decide on the possible renewal of the accreditation of NGS schools.

In addition, unlike traditional schools, NGS schools can recruit teachers or terminate teachers’ employment contracts at the school level. This policy is undoubtedly the catalyst in fueling teachers’ commitment to maintaining teacher professionalism. Teachers at NGS schools are not in their comfort zone but, instead, have to be devoted to their teaching onus. Yet, such a practice is unlikely to sustain as teachers might transfer to work at traditional schools where they can feel secure, comfortable, and less pressured. For students, they have to pass the entrance exam and interviews to secure a place; this practice permits NGS to select qualified or potential students. After having been admitted to study at NGS for about three years, they might be asked to voluntarily contribute some fees but this contribution is based on negotiations between NGS schools and parents. The purpose of this fee contribution is to generate some incomes from affordable parents and the fees can be allocated to enhance educational services and other facilities. Thus, this practice is different from traditional schools where parents might pay fees directly to teachers who offer private tutoring and none of those fees contributes to school development.

Ongoing debates about the achievements of NGS

NGS initiative has progressed with both successes and challenges over the years. First, there has been an increase in student enrollment rate in which the total number of enrollment was about 6000 while the accepted number of students was at 5722 students by 2020. At the same

time, the results of the Bacc II examination of grade 12 student cohorts in the 2018–2019 academic years were excellent. That is, the passing rate at NGS⁴ in Preah Sisovath high school in Phnom Penh was 94% and Hun Sen Kampong Cham high school was 84%; these results were higher than the national passing rate of 68%. In addition, the number of students who scored high grades: A, B, or C was 38% at Sisovath NGS and 27% at NGS in Hun Sen Kampong Cham (KAPE, 2020a). However, these academic results have brought about different interpretations. Chea and Chen (2021) slammed that these data are rather questionable as students at NGS are rigorously recruited; thus those highly ambitious and committed students tend to perform academically better. Conversely, the reformers contended that the students in cohorts 2018 and 2019 were admitted without the exercise of selection procedures (KAPE, 2020a). In this respect, while the reformers' argument can be valid and applicable to those cohorts (2018–2019), the critics' argument can also be applied to the subsequent cohorts of students when the student selection regime is implemented.

Besides enrollment and academic achievements, NGS schools have engaged students with international competitions and learning projects (about 490 group projects) on topics driven by their own interests (KAPE, 2020b). For instance, in 2019, 612 students at NGS schools received 819 awards, among which 46% were gold, silver, and bronze medals (KAPE, 2020a). Yet, while these prolific achievements are remarkable, one might question about students' mental health or well-being—resulting from academic workloads—as students at NGS study full-time and have to complete homework, projects, or presentations. These tasks are time-consuming and labor considerable efforts and commitment. In fact, the reformers also feel pressured from the public interest in how NGS schools can engage students in 21st-century learning approaches (student-center) and help students succeed in the Bacc II national examination (see KAPE, 2020a), let alone to mention students' feelings. Again, these high ambitions would cause fallouts more on students than staff. At this juncture, empirical evidence about students' well-being or mental health is nowhere. In overall, the reformers appear to be overwhelmingly pressured by standards and competitions, all of which might be the strands of propaganda for funding but also can be the inner erosions of the public education (Biesta, et al., 2021), as argued above.

In addition, the government has put a slew of capital investments in NGS schools to modernize educational facilities and school development. For example, by 2020, it was estimated that the reform would have consumed roughly \$US 8.5 million during five years (2015–2020) (KAPE, 2020b). This investment has allowed the NGS schools to purchase modern equipment such as experiment tools, laptops, or slide projectors that teachers and students can use for their teaching-learning purposes. The engagement of technology in education is of the essence and the well-spent investment. Yet, although teachers have been reported to use technology in teaching, there is no empirical evidence about the impacts of the use of technology on students' learning. It has been only reported that teachers design activities that are centered around: group or pair work, projects, and presentations, yet tangible scientific evidence remains unavailable. Thus, the question about whether this huge investment is cost-effective remains the question.

Other achievements include poor dropout rates, high teacher professionalism, high higher education access rates (KAPE, 2020b). Again, many questions about NGS remain. For example, Bo (2021) was concerned with the equity of education as she raised concerns about learning opportunities between privileged and underprivileged students, unequal investment between traditional schools and NGS schools, and parental contribution fees which might discourage disadvantaged students not to choose to study at NGS schools. Considering the contribution fees, it is concerned in this paper that this principle should come into conflict with the universal and

national principle of “Education for All,” in which the government holds the responsibility to offer fee-free education to every citizen. NGS schools are operated under the oversight of MoEYS but they indirectly charge fees from students under the image of the Social Charity Fund. Another criticism is about whether the increase in teacher salaries can be a factor leading to good student academic achievements (Chea and Chen, 2021). Drawn on this discussion, it is argued that the reformers should pay more attention to the above-mentioned concerns by putting more attention on research evidence.

11.3 NGS reform’s impacts on shadow education: Key lessons

As discussed in the above section, NGS has left both achievements and questions to the public. This section elaborates whether the NGS reform has any effects on shadow education that has been a long-standing culture in Cambodia. Drawn on the NGS policy document (MoEYS, 2019), reports (KAPE, 2019, 2020a; and 2020b), and research findings (Nhem and Kobakhidze, 2022), this paper reveals three important lessons for policymakers, researchers or readers in the Cambodian context and other societies.

The absence of shadow education amid learning pressures?

The reformers claimed the absence of private classes within NGS schools (KAPE, 2020a), yet failed to attest whether students take private tutoring elsewhere or not. This question has been, to some extent, answered by a recent study that interviewed fourteen students in grades 11 and 12 at two NGS sites (8 students from NGS-A; 6 students from NGS-B) (Nhem and Kobakhidze, 2022); the study reported that the majority of the students participated in private tutoring outside the NGSs to cover lessons learned in NGSs, prepare for exams, or get more exercises. Regardless of the generalizability of the findings, the study has raised doubts about the quality of NGS reform. That is, it is puzzled about whether students’ academic achievements [see Ongoing Debates About the Achievements of NGS] are determined by the NGS reform, private tutoring, or the combination of both. Thus, with the presence of private tutoring, any assertion about the success of the reform—having impacts on students’ learning achievements—is rather too early.

In addition, the fact that students participate in private tutoring because of their anxieties about high-stakes examinations (e.g., Grade 12 exams) exists in almost every country, including de-veloped countries (see, for example, Yung, 2021 in Hong Kong; or Entrich, 2014 in Japan). This can suggest that alternative assessments and selection procedures might play an important role to temper such anxieties (Bray and Lykins, 2012). The use of alternative assessments also concurs with the principle of child-centered pedagogy which is one of the pursuits of the NGS reform. That is, the assessment should be designed to evaluate students’ performances or learning activities rather than their memories (see, for example, Wiggins, 1991). In fact, the notion of learning competitions or test scores as the quality standard is not only the catalyst for the existence of private tutoring but also the threat which erodes the foundation of public education for the public goods (Biesta, et al., 2021; Tesar, et al., 2021). That means meaningful construction of learning experiences has been often unheeded in the context of teaching-for-testing.

Teacher professionalism vs. shadow education: Searching for sustainability

The NGS reform has successfully maintained a high level of teacher professionalism. Teachers are required not only to deliver high-quality teaching services but also not to engage in private

tutoring services (from teachers to their students). If a teacher at any NGS school is found to break any regulations and that school takes no action to stop unprofessional practices, then the school might face the risk of losing the accreditation, a passport to gain access to the government's funds and resources (see examples from the policy and report below). This claim is supported by a study (Nhem and Kobakhidze, 2022) which found that some NGS students sought private tutoring elsewhere outside the NGSs because their teachers were restricted from providing private classes.

“Ensuring that teachers are not teaching private classes to their own students during working hours” (p. 5, MoEYS, 2019)

“It is important to remember in this regard that private classes at all New Generation Schools are strictly forbidden so that students were able to achieve these very high outcomes through a combination of extra hours of regular study (New Generation Schools provide 40 hours of instruction per week), practical lab work in 21st-century science labs, and special classes that the school organizes for ALL students that are free of charge.” (p. 16, KAPE, 2020a)

In general, teacher professionalism is almost everything in the teaching profession as it creates accountability and transparent practices in classrooms (Sachs, 2015). Over the years, teacher unprofessionalism has come to the fore in Cambodia. Teachers have been reported to have split public school curriculum contents—leaving some parts for private classes (Bray, et al., 2018; Bray, et al., 2019; Brehm and Silova, 2014; Soeung, 2021), provided insufficient explanations (Bray, et al., 2016), treated students differently, appeared less energized in regular classes or lacked of commitment (Bray, et al., 2018). These acts have become the coercive strategies of teachers to create their market space for private tutoring. Without taking private tutoring, students might not perform academically well; one study in Cambodia also found that students who participated in private tutoring performed better than those who did not (Pov et al., 2020). This achievement does not necessarily mean private tutoring had impacts on students' learning, but it can be a kind of teachers' promise to students who attended private classes. Thus, this propensity of teachers has been successfully wiped off by NGS.

However, the enhanced practices of teacher professionalism have also been prone to challenges. Teachers who are recruited to teach at NGS schools have to agree and comply with the regulation of not providing private tutoring services to their students. According to the reports (KAPE, 2019, 2020a, 2020b), some teachers refused to join NGS schools as they were forbidden from engaging in private tutoring (see examples from reports 2019; 2020b below). Concurrently, the turnover rate is another concern—presenting a challenge in keeping good performance teachers. Unfortunately, empirical evidence on the teacher turnover is wanting—leaving this phenomenon, which has implications on the reform, questionable. In this sense, the practices of teacher professionalism are far from easy to find ways sustainable in the context.

“Opposition has been particularly vocal among upper secondary school teachers who are deeply opposed to the provisions in the New Generation School Framework that forbid teachers from extorting money from students as a condition to access the national curriculum.” (p. 3, KAPE, 2019)

“The primary reason for their unwillingness to join the growing New Generation School program is that NGS Policy Guideline requires them to give up their private ‘rien kua’ classes, which they refuse to do, even though they would receive an incentive to compensate them.” (p. 28, KAPE, 2020b)

Effective leadership: “Goodbye” to corruption for shadow education

Research conducted in Cambodia has shown that shadow education is coupled with not only teachers but also school leaders who permit the culture of private tutoring to exist (see [Bray, et al., 2016](#); [Bray, et al., 2019](#); [Brehm, 2021](#); & [Dawson, 2010, 2011](#)). For instance, [Dawson \(2010, 2011\)](#) described shadow education in Cambodia, partially resulting from the hierarchy of corruption in which teachers paid bribes to school principals to run their private classes; the principals then shared the bribes to other higher-ranking officials. In this regard, as regulated in the policy document ([MoEYS, 2019](#)), NGS school leaders must ensure that teachers are not involved in any form of private tutoring (also see [Nhem and Kobakhidze, 2022](#)). If private tutoring exists in an NGS school, the school's accreditation to access the government's resources or investment will be terminated. In this manner, the NGS reform has implications on effective school leadership that gives no tolerance to corruption—allowing teachers to spoil the public school curriculum and pay less attention to their teaching onus (see [Bray, et al., 2016](#); [Bray, et al., 2018](#); [Bray, et al., 2019](#); [Brehm and Silova, 2014](#); & [Soeung, 2021](#)). Thus, the NGS reform is the embodiment of the government's awareness of the compounding effects of shadow education and its strategy to intercept such a tedious phenomenon. “The Board also makes recommendations for continued accreditation of a New Generation School. If a school is found to be in noncompliance with key criteria for performance (e.g., no private tutoring, enhanced library services, etc.), it may lose its accreditation. Without continued accreditation, the school will lose its access to special government resources.” (p. 6, [MoEYS, 2019](#)) “When a school calls itself a New Generation School, one can be confident that the school has certain very high standards including longer hours of learning, no teacher corruption, modern library and laboratory facilities, regular access to ICT facilities, and other important features.” (p. 4, [KAPE, 2020a](#))

The above discussion about teacher professionalism and effective school leadership is particularly intriguing as the Education Law (2007) in Cambodia has long prohibited any misconduct of educators (see below). Unfortunately, the regulations seem to have little effect on shadow education, which is possibly because of corruption ([Dawson, 2010, 2011](#)) and poor school leadership ([Bray, et al., 2016](#); [Bray, et al., 2019](#); [Brehm, 2021](#)). Thus, this paper argues that the abolishment of shadow education is at the mercy of the accountability of school leaders and teachers who are aware of their professional misconducts—possibly having detrimental impacts on students' learning and forming a hierarchy of corruption ([Dawson, 2010, 2011](#)). Simply put, NGS reflects the essence of school-level accountability as the mechanism to combat private tutoring culture and corruption. However, it is important to note that accountability cannot exist without comprehensive regulations and effective reinforcements (e.g., working contract, private tutoring regulations, or school evaluation). Therefore, the accountability of teachers and school officials at the school level should come to major attention among policymakers and researchers at present or in the future.

... educators have to comply with the professional code(s) of ethics:

- To fulfill other duties that are stipulated in valid law;
- To undertake and develop their work with due high diligence and responsibility. ([MoEYS, 2007](#): 14, p. 14)

Concerning school accountability, school leadership plays a vital role in ensuring professional practices of teachers and administrative staff ([Bush and Glover, 2014](#); [Hallinger, 2003](#)), yet research in Cambodia has found insufficient qualities of school leaders, that is to say, delegating unreasonable and unachievable tasks ([Sorm and Gunbayi, 2018](#)), or lack of teacher

professional development (Kheang, O'Donoghue and Clarke, 2018). These findings should not be much surprising because school leadership education has not much been prioritized in the context, and the recruitment of school leaders has been mainly based on good working experiences rather than sufficient training. In some developed countries, school leadership preparation has been taken with great care. For example, Singapore has had a rigorous school leadership program for a few decades already (Diploma in Educational Administration (DEA), 1984–2001; Leaders in Education Programme (LEP) (2001–present) (see Lim, 2007).

In Cambodia, the MoEYS has recently also recognized the essence of leadership by introducing a school-based management initiative that aims to develop school leaders and teachers to become more responsible for their duties (MoEYS, 2021). The MoEYS also allows the Royal University of Phnom Penh to take part in developing school leaders' capacities under a project "School Leadership Upgrading Program" (see Sok et al., 2020). Nevertheless, tangible data on whether this scheme has any impacts on the diminution of shadow education remains absent. Recently, school leadership education has also been listed among the priorities of the education development blueprint 2030 (see, for example, MoEYS, 2021), yet how this plan will come into effect might be still a long wait.

11.4 Conclusion

As indicated in the first section, shadow education is one of the major concerns in Cambodia and other contexts globally. In Cambodia, shadow education, which has implications on teacher and school leader professionalism and corruption, has become the subject of public criticisms and posed a threat to the quality and equity of the mainstream education system. Drawn on the analysis, this paper shows that students' participation in private tutoring still persists and the reasons are inherently associated with the quality of NGS and examination pressures (Nhem and Kobakhidze, 2022), suggesting the need for further improvement of the NGS education reform and the use of alternative assessments. However, the NGS project has successfully removed the culture of private tutoring offered from public teachers to their students. This success offers implications on the accountability of school leaders and teachers who carry on their work professionally and who are opposed to corruption. It can be also learned that school-level accountability is not feasible without strict regulations and evaluations (e.g., teacher contract, regulations of professional practices, or school accreditation). Any violation of the prescribed regulations will put the professional work at risk. Otherwise, corruption—possibly leading to the continued practices of private tutoring—will return.

Indeed, school accountability can and should also be applied to other traditional schools. With the rigorous evaluation and monitoring, school practices would be enhanced and teachers' engagement in shadow education is likely to disappear. I also believe that the careful and rigorous preparation of teachers and school leaders is indispensable. They should be trained about not only pedagogies or leadership skills but also educational development issues (e.g., shadow education) so that they become aware of problems arising from institutional practices. In Cambodia, although teacher preparation has been constantly improved, there seems to be no exact plan of rigorous school leadership preparation programs as some developed countries have done. I therefore argue that developing school leadership is a long-term investment in education development. To conclude, this paper invites researchers interested in shadow education to examine alternative assessments and institutional practices of school accountability as the ways to penetrate shadow education. To the NGS reformers, they should conduct more research activities to analyze the impacts of NGS on various aspects rather than expand the scale of the NGS project.

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ORCID iD

Davut Nhem  <https://orcid.org/0000-0002-0853-8521>

Notes

1. These two terms “shadow education” and “private tutoring” are used interchangeably in this paper.
2. This stereotype is based on the author’s learning experience in high school in a province; during streaming process, teachers who taught science subjects and had private classes explicitly described students in the social science track as lazy, uncommitted, or low performing students. This refers to the fact that most students in the social science track usually pay less attention to private tutoring as their core subjects (e.g., Khmer, History, or Geography) are not necessary to learn in private classes. The stereotype is also supported by research that interviewed 24 teachers and 48 students (Grade 9 and 12) in Siem Reap province. The study found that teachers viewed tutoring students as “smarter, more motivated and having a higher sense of responsibility” than non-tutoring students (see Bray et al., 2018: p. 12).
3. KAPE, established in 1996, has become one of the vital and independent NGOs which have implemented many innovative projects in Cambodia. It has gained trust from the MoEYs and the public.
4. There were only two NGS schools that had students taking grade 12 exams during the analysis.

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Davut Nhem is a lecturer in the Department of English, Institute of Foreign Languages (IFL), Royal University of Phnom Penh (RUPP), from where he concluded his M.A. (TESOL) in 2019 and Bachelor of Education (TEFL) in 2017 respectively. Prior to joining IFL/RUPP, Davut has worked as a lecturer in the Faculty of Education, Pannasastra University of Cambodia and the Department of English, Norton University. He also used to be a program coordinator (Adult English Program) and teacher of English at private schools in Phnom Penh. His research interests are centered on teaching- research nexus, shadow education (private tutoring), education reform and policy, and English language education. His works have been published in many journals such as *Tertiary Education and Management* (Springer), *Asian Journal of Applied Linguistics*, and other journals.