

# Chapter 6

## Cambodia's New Generation Schools Reform



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**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.

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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 feedback 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 international 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 interactive 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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