



Ministry of Education, Youth and Sport
Education Research Council



CAMBODIA EDUCATION REVIEW

December
2017

Volume I No I



Education Research Council
ERC Office, Level 2, MoEYS Administration Building,
St 380, Boeng Kengkang I, Phnom Penh, Cambodia

Cambodia Education Review

Volume 1, No. 1, 2017

Access to online publication: www.erc.moeys.gov.kh

E-mail: cer.editor@moeys.gov.kh

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This publication is supported by ADB Loan Number 3427 CAM (COL)

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Published and typeset in Cambodia by Cambodia Education Review

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Ministry of Education Youth and Sport
Education Research Council

Editorial

Improving the quality of education for social development and economic growth in Cambodia

Hang-Chuon Naron^a

^a Chair, Education Research Council

Citation: Hang-Chuon, N. (2017). Improving the quality of education for social development and economic growth in Cambodia. *Cambodia Education Review*, 1(1), 1-4.

The Ministry of Education, Youth and Sport (MoEYS) embodies a vision “to establish and develop human resources of the very highest quality and ethics in order to develop a knowledge-based society within Cambodia.” This vision is in line with the Rectangular Strategy Phase III and the Industrial Development Policy 2015–2025, which envisage moving the kingdom from a low-income country to an upper-middle income status by 2030 and a high-income nation by 2050.

Cambodia has garnered tremendous economic growth and poverty reduction. The average annual economic growth rate marked 7.8% during 1997–2014, with the latest growth rate of 6.8% in 2017. Gross Domestic Product (GDP) per capita rose from USD 216 in 1992 to USD 1,330 in 2016. Poverty rate has declined dramatically, from 53.2% in 2004 to 18.0% in 2015. The sources of economic growth have relied less on agriculture (26.6% of GDP in 2015) but more on industrial (27.7%) and services (39.8%) sectors. Specifically, agro-industry, tourism, construction and garments are the mainstay of growth. Notwithstanding, the economy has recently diversified its sources and climbed up the manufacturing value chains by increasing exports of electrical machinery, equipment and auto parts.

This trajectory of economic growth has rendered harder challenges for the education sector to fulfil its vision. If we are to reach our vision, we need to upgrade our human capital from a labor-intensive, low-skilled

workforce to an innovative, high-skilled one in a more efficient and effectual fashion. The MoEYS has devised and executed many policies and strategies to address the shortage of, and to refine the skills and knowledge of, our human resources. Of salience, the Education Strategic Plan (ESP) 2014–2018 is devoted to “ensuring equitable access to education services for all, enhancing the quality and relevance of learning, and ensuring effective leadership and management of education staff at all levels.” Further, the Cambodian National Qualification Framework elucidates concrete levels of knowledge and skills expected of learners in order to respond to the needs of the evolving labour market and the national development.

There is a clear indication that the quantity and quality of our human capital have been enhanced, particularly as illuminated in the rapid and steady economic growth. But, despite making the great strides in human resource development, the education sector still has a long way to walk to arrive at what is aspired. Erecting a school is easy but boosting and sustaining the institutional quality of schools needs better commitments of resources and time. For instance, although we have almost achieved the goal of universal primary education (with an enrolment of 97.0%), completion rates are still low (79.9% at primary level, 42.6% at lower-secondary level, and only 20.2% at upper-secondary level). Over the last eight academic years, the average number of students who were enrolled in Grade 1 was about 700,000, but the number of students who continued and successfully graduated from Grade 12 was only about 70,000. Another need for quality improvement is reflected in the results of a nationwide assessment conducted by the Department of Education Quality Assurance. For example, around 40.0% of tested students at Grade 3 in 2016 and Grade 6 in 2015 failed to achieve the levels of knowledge in both Mathematics and Khmer Language as expected in the curriculum standard for each level.

Asian experience depicts three chief factors that contribute to education quality improvement: investment in education at the national level, appropriate class sizes, and teacher qualification at the school level. Compared with most ASEAN countries or Association of Southeast Asian Nations, Cambodia lags far behind in these indicators. Our national budget devoted to education is about 2.5% of GDP, comparing to 5.8% in Thailand and 6.8% in Vietnam. Less than 20.0% of our teaching force holds a Bachelor’s degree. Class sizes remain a challenge due to surplus of teachers in some schools but shortage in others.

In line with the fifth mandate of the Royal Government of Cambodia, the MoEYS has accelerated its focus on quality improvement as stipulated in the ESP 2014-2018. The national budget for education has increased, reaching over USD 800 million or about 2.5% of GDP in 2018. Nonetheless, to catch up with the pace of economic growth and to materialize its vision, the education sector should require a budget of at least 5% of GDP. This is to ensure adequate resources for actors in charge of education reforms so that they can be held accountable with deliverable and measurable outcomes at every level of services.

The MoEYS has set a reform agenda premised on eight mechanisms. Gradually, some of these mechanisms have become policies, guidelines and action plans to guide implementation, monitoring and evaluation of the reform agenda. However, it is the relevant General Directorates, Departments and Offices at national and sub-national levels, who are hands-on practitioners, which can rightly interpret and implement the policies and strategies and turn them into their own guidelines and action plans to improve the effectiveness and efficiency of their service delivery. This can be done based on reliable and valid information and evidence collected through scientific and empirical research, which needs to be cultivated and bolstered at all educational institutions.

A number of elements of the reform agenda have been accomplished. But, much remains to be done. Observations show that the reform has not been rapid and profound as intended due to the absence or paucity of reliable and valid information to guide the policy formulation, implementation and review because of limited research into the priority areas. Education statistics and indicators, national assessments, and high school examination results contain a lot of information that relevant agencies and stakeholders should have used in order to analyse the functioning of their respective duties and set targets for improvement at the level of their authority.

The MoEYS has supported research and encouraged the use of research findings and assessment results as concrete evidence to inform innovations and practices. As part of this endeavour, the Education Research Council (ERC), a home-grown think tank, has been established and its key studies are presented in the first issue of this Cambodia Education Review. It is sincerely hoped that concerned agencies and stakeholders find these studies relevant and useful for the improvement of their work. This Review is also intended to ignite a culture among MoEYS officials at all levels to embark on doing research and utilizing research

results to reflect, review and refine their practices. Without such a culture, the mission to produce competitive and productive human capital to meet the needs of national development will not be realized. Ultimately, the MoEYS firmly believes that with sufficient resources and commitments our reform agenda will sustain the momentum to achieve the vision of producing a caring, responsible, proud and competent citizenry.



Ministry of Education Youth and Sport
Education Research Council

Article

The paths of education reformⁱ

Hang Chuon Naron^a

Minister, Ministry of Education Youth and Sport

(Correspondence: hang.chuon.naron@moeys.gov.kh)

Received 20 November 2017; Accepted 30 December 2017

Abstract

The 21st century has witnessed many global challenges, ranging from climate change and galloping globalization to global terrorism. Furthermore, the onset of the Fourth Industrial Revolution has further exacerbated economic competition between nations in the world. Old skills will become obsolete very fast. Young people will be denied a future if they do not possess skills required by job markets. Education reforms have been undertaken primarily in response to the need to prepare young people to cope with global challenges. This paper explores the evolution of four dimensions of education management reforms (administrative, academic, financial, and human resource management) that should result in enhancing the quality of good national and global citizens. The paper concludes that developed and/or developing country should enhance their reform performance according to the prescribed dimensions.

Keywords: Educational reform, management reform, school-based management, community, teachers, students, performance, 21st century skills

Citation: Hang-Chuon, N. (2017). The paths of education reform. *Cambodia Education Review*, 1(1), 5-31.

1. Introduction

The world is now at the dawn of the Fourth Industrial Revolution, which is shaped by globalization and unfolding technological transformations. The confluence of emerging technology breakthroughs has triggered this revolution, covering wide-ranging fields such as artificial intelligence, robotics, the Internet of things, autonomous vehicles, 3D printing, nanotechnology, biotechnology, material science, energy storage and quantum computing. This new revolution will have a big impact on how the new generation will be educated to prepare them for future job markets (Schwab, 2016). According to research from the World Economic Forum, 35% of the skills necessary to get a job today will be different ten years from now. The Fourth Industrial Revolution will mean that, over the next ten years, a third of the skills the economy needs will change due to automation. A child today will have to change jobs at least seven times over the course of their lives – and five of those jobs do not exist yet exist. It is therefore impossible to predict which “hard skills” children in today’s classrooms will need for their future jobs. A survey of 900 companies confirmed that soft skills are the most relevant for the future. These skills include teamwork, knowledge of digital tools, an understanding of rules and regulations, responsibility, and commitment. The jobs that even artificial intelligence can’t replace will be those that require strong human character traits. Workers will need a positive attitude to re-learn and adapt to new situations as old skills become obsolete (Thomson, 2016). Therefore, the rapidly changing technologies and economic and political landscapes of the world require that education and skills policies should take center stage. Education and skills will have a significant impact on individuals’ and societies’ capacity to adapt to changes and to take advantage of the opportunities brought about by globalization (Woessmann, 2011).

Education has therefore become an important factor in access to, and exploitation of, available science and technology, and has been considered as part of the solution to global challenges. An educated population provides the type of labor force necessary for industrial development and is the anchor of a harmonious society and a sustainable world. Cognitive skills and non-cognitive skills are important for productivity and social outcomes. Thus, policy discussion revolves around the quality of education. However, skill mismatch has emerged in Cambodia since 2008, because of rapidly changing social and economic landscapes, while education institutions are too slow to catch up with the changes. A successful strategy requires implementation of systemic education reform to deal with complex entities and to solve multiple problems simultaneously. Reform should take place at the school

level. There is a trend in many countries toward increasing autonomy and devolving responsibility to the school level, by encouraging responsiveness to local needs. The objectives of school reform are to raise performance through the implementation of School-Based Management. Therefore, developing countries should embark on education reform to improve school and teacher characteristics, as well as child and family characteristics.

In this regard, education quality and not just access to education should be at the heart of education policies. Education must equip students with both cognitive and non-cognitive skills, so that they will be able to face an uncertain future and cope with global challenges. Therefore, education reforms should be implemented by both developed and developing countries to achieve Sustainable Development Goals (SDGs) and notable lifelong learning, with strong emphasis on 21st century skills. Improving critical thinking and problem-solving skills of students is essential and will enable students to adapt better to rapidly changing technologies and labor markets. In response to the above educational challenges, the Cambodian Ministry of Education, Youth and Sport (MoEYS) has embarked on an education reform program by adopting the Medium-Term Review of the Education Strategic Plan 2014-2018 with projections until 2020, which outlines a 21st century educational agenda (MoEYS, 2016).

Figure 1: Landscapes of Educational Reform

<i>Administrative and General Management</i>	<i>Academic Management</i>	<i>Education Finance Management</i>	<i>Personal Management</i>
<ul style="list-style-type: none"> • Education policy and strategic planning • School-based management • Community in school management 	<ul style="list-style-type: none"> • Education curriculum and textbook Management • Learning and teaching process • Student assessment and school inspection 	<ul style="list-style-type: none"> • Education finance allocation • Financial autonomy and accountability at school • Education budget audits 	<ul style="list-style-type: none"> • Pre-service training • In-service training • Teacher performance assessment

Source: Author

In view of the above, the most pressing issue for MoEYS is to embark on an in-depth reform program that will contribute to significantly increasing the number of youth and adults with strong literacy, numeracy, and soft-skills combined with technical and vocational skills, for gainful employment and entrepreneurship. The in-depth reform in the coming agenda may take into account administrative and general management, academic management, education finance management, and personal management (as in Figure 1).

These four dimensions are examined rigorously from literature and author experiences.

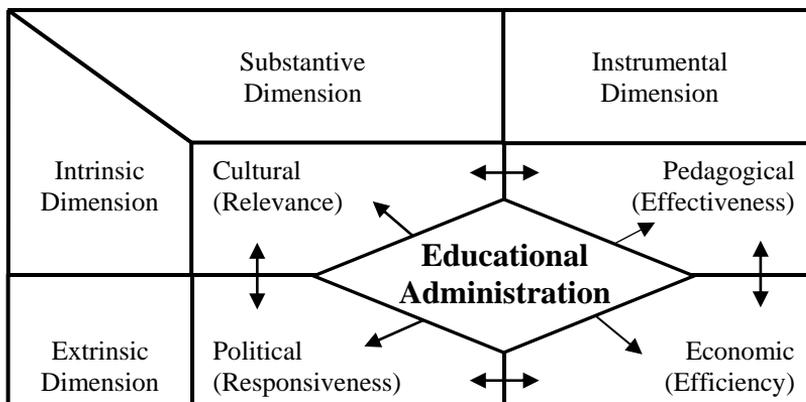
2. Administrative and general management reform

Education management systems are complex. UNESCO (1989) identified three major classifications of educational management theories in professional literature and suggested four criterion-based models: efficiency-based administration, effectiveness-based administration, responsiveness-based administration, and relevance-based administration. Let us look at each of these theories below:

- (i) *Efficiency-based administration* is derived from the classical school of administration and is induced from the practice of school executives who behave according to the views of general, scientific and bureaucratic management, based on the criterion of economic efficiency. The objective of educational administration is to secure the means suitable for attaining production goals and a high degree of productivity.
- (ii) *Effectiveness-based administration* is related to the psychosocial school of administration and is derived from the evaluation of the practical experience of school executives who adopt the principles of the behavioral approach to administration.
- (iii) *Responsiveness-based administration* is based on management theories and is analytically induced from different practical experiences in public and educational administration. The protagonists of these contemporary movements consider any organization as an open and adaptive system.
- (iv) *Relevance-based administration* is derived from recent and current interactionist formulations founded upon phenomenology, existentialism, the dialectical method, critical theory, and the human action approach.

The education system is multi-layered at both horizontal and vertical levels. At the horizontal level, UNESCO (1989) synthesized and classified educational management models into a multi-dimensional paradigm, which is composed of four interacting dimensions: the economic, pedagogical, political, and cultural. Improving educational outcomes requires reforming the four education management system components simultaneously (Figure 1).

The educational administration as proposed by UNESCO (1989) can be defused to three levels of management including education policy and strategic planning, school-based management, and community involvement in school management.

Figure 2: A Multidimensional Paradigm of Education Management

Source: UNESCO, 1989.

2.1. Education policy and strategic plans

Education systems are contested terrains (Verdugo, 2014). Education systems are served or conceptualized for different ends in the historical, political, cultural and social context in which they are positioned. Many scholars support the contested nature of education systems. Verdugo (2014) highlights that history, culture and governance regime sets the context for education reform and policy. Taylor (1997) emphasizes that education policy and reform have a political nature in which the policies result from competing struggles between actors and concepts in which the absence in the policies is due to the exclusion of some actors and the concepts in the policy process. For these reasons, educational reform may not be considered as a homogenous process. However, the homogenous character is not absolute.

In the 21st century, characterized by a fast changing globalized era, on the one hand, education system serve a global knowledge economy or economic development of the nation. On the other hand, global actors such as UNESCO, WB, and ADB etc. have been increasingly involved in global education agendas. This has resulted in homogeneity in education policy. This homogeneity is displayed by the emergence of big policies for a small world or the emergence of global education policies. These phenomena require new values and understanding of education and a new paradigm of education policy and reform. Patrick Shields (in Anson, 1994) argues that pedagogically, politically, and practically, schools and communities must be brought together as school reform moves into the 21st century. Public policy must include families and communities more directly in the education of all students.

In the new area of industrialization, education policy and reform are employed for industrial development requiring the workforce to be well trained to meet the needs of the economy. To this end, educational policy and reform aim to provide appropriate responses to these varying needs at different phases of economic development. Educational change should be based on comprehensive knowledge and well-researched understanding of education issues rather than based on political and ideological preference to optimize the success of the education reform. The failure of most education reform in the world is due to political interference and ideological adherence (Levin, 2010).

As part of education reform, administrative and general management reform also requires the coordination between, on the one hand, the implementation of policies at the national level, such as the national education policy, the Education Strategic Plan (ESP), the Law on Education, related policies and administrative structures (e.g., divisions of education management at national provincial, district and school level) and, on the other hand, the implementation of policies at school level, such as school management and community involvement in school activities. Advocates for comprehensive education reform argue reform strategies built from diverse perspectives are necessary to support continuing participation of ideological adherents, as well as those who demand a predetermined organizational form or pedagogical design. This requires linking school and district level initiatives to national policy development.

2.2. School-based management

The education management system consists of education policy management (Ministry of Education), the teacher training system, and the school. Hoy and Miskel (2008) provided a synthesis of education management at school level. Schools are open social systems with five important elements or subsystems: the structural, the individual, the cultural, the political, and the pedagogical. Organizational behavior is a function of the interaction of these elements in the context of teaching and learning. The teaching-learning process is the technical core of the school social system. The environment is also a critical aspect of organizational life. It not only provides resources for the system but also provides additional constraints and opportunities. Effectiveness indicators can be derived for each phase of the open-systems cycle-inputs (human and financial resources), transformations (internal processes and structures), and outputs (performance outcomes).

Seeing the school as an open system implies a set of interaction elements that involves the acquisition of inputs from the outside, their transformation, and conversion into outputs for the environment. People, raw materials, information, and money are the typical inputs for schools. In the transformational process, these inputs are changed into something of value called outputs, which are then exported back into the environment. Outputs are usually products and services, but they may also include employee satisfaction and other by-products of the transformation process. Classrooms, books, computers, instructional materials, teachers, and students are critical inputs for schools.

Transformational criteria refer to the quantity, quality, and consistency of the internal processes and structures that transform the inputs into outcomes. Examples of transformation criteria are the structure and content of the curriculum, the health of the interpersonal climate, motivation levels of students and teachers, teacher and administrator leadership, quality and quantity of instruction, and quality-control procedures such as the number of tests given, evaluation of teaching, use of instructional technologies, and personnel evaluations. To maximize school effectiveness, the internal elements of teaching and learning, bureaucratic expectations, group culture, political expectations, and individual needs must work harmoniously together to produce the desired performance goals.

Priscilla Wohlstetter, Roxane Smyer and Susan Albers Mohrman (in Anson, 1994) identified four resources needed to make school-based management a powerful lever for reform. In addition to devolving power, knowledge and skills must be developed; information about the context and goals of an organization must be available; and rewards must be based on performance. They found that success was tied to more shared power among many participants, extensive training to take advantage of opportunities and a system of collaboration and information sharing.

Reform should take place at the school level. There is a trend in many countries toward increasing autonomy and devolving responsibility to the school level, by encouraging responsiveness to local needs. The objectives of school reform are to raise performance through the implementation of School-Based Management. Therefore, developing countries should embark on education reform to improve school and teacher characteristics, as well as child and family characteristics.

2.3. Community involvement in school management

According to Cheng (2001), there are three waves of education management reforms. Different countries, facing different historical, economic and

contextual conditions, are at different phases of reform. The following are the key paradigms and characteristics of the three waves of education management reforms in international contexts.

The first phase of education management reform emphasizes *internal effectiveness*, by enhancing internal school performance, especially the methods and processes of teaching and learning. This top-down approach aims to ameliorate school arrangements and education practices in order to reach the goals and objectives at the school or the system level. The target is to increase teacher and student performance to some pre-defined standard.

The second phase of education management reform focuses on *interface effectiveness* in order to realize education quality, stakeholders' satisfaction, and market competitiveness. The interface between the school and the community requires quality assurance, school monitoring, parental and community involvement in governance, school charters, and performance-based funding.

The third phase of education management reform concerns future effectiveness in order to respond to the new education functions in the 21st century and to ensure relevance to learning, teaching, and schooling within the context of 'triplization,' i.e., globalization, localization, and individualization. Education globalization offers opportunities for Internet-based learning, video-conferencing, and international collaboration in learning and teaching. Localization in education includes community support and parental involvement, school-based management, and community-related curriculum. Individualized education programs and individualized learning targets and methods motivate students and teachers to be self-learning, self-actualizing, and self-initiating (Cheng, 2001).

Other characteristics of education management reform in Singapore emphasize competition among schools. Schools are forced to improve their programs and parents can make choices based on ranking. Secondary schools have been ranked based on three criteria: (i) composite measures of students' overall results in the annual General Certificate of Education (Ordinary) Level examination; (ii) students' examination performance with their examination scores upon entry to their respective schools (after O Level); (iii) weighted indices of school performance on the National Physical Fitness Test and the percentage of overweight students in school.

Education reform in developing countries covers a wide range of issues, many of which are not just educational in nature. During the last two decades, education reforms have shifted from ideology-based changes toward a paradigm shift. While reviewing factors that determine how many

years children are enrolled in school, and how much they learn while they are in school, Glewwe (2014) classified such factors into two broad groups: (1) school and teacher characteristics; and (2) child and family characteristics.

Policies that change the incentives received by students and parents are demand-side policies that support schooling. Conditional cash-transfer programs have become more common in developing countries (World Bank, 2009). There are four types of incentive programs commonly used in development programs: (1) Conditional cash-transfer programs, which provide parents monthly payments conditional on their children attending school regularly; (2) payments to students based on their academic performance, such as exam scores; (3) school-voucher programs that provide funds that parents can use to enroll their children in schools; and (4) ‘food-for-education’ programs that provide children with meals at school or supply their families with foods to be consumed at home. A third policy category focuses on supply-side schooling issues and seeks to make the supply of educational services (e.g., teaching, library services, management, etc.) more responsive to the demand for education. Often, these policies take a very school-based management approach to addressing supply-side issues

3. Academic management reform

It requires the coordination between the national curriculum standards, examinations, and learning assessment at the national level and teaching and learning, school inspection, and student achievement at the school level. For reforms to succeed, teachers need special time to learn, to teach, to innovate, to learn new skills and ideas, to carry out administrative work, and to solve problems (Joseph Cambone in Anson, 1994). He stressed that reforms should not interfere with a teacher’s time for teaching. Moreover, teachers should integrate reform into their individual teaching context. Collaboration is needed to promote interaction, support, and intellectual growth. Teacher professional development encourages evolving individual perspectives on change (Judith Warren Little in Anson, 1994).

Jane David (in Anson, 1994) proposes to effectively harness the power of technology to promote school reform. Technology itself is not the answer to questions of reform but can be a powerful part of the answer. ICT must be accessible, functional, and supported by proper training.

3.1. Education curriculum and textbook

Systemic reform is a comprehensive change program designed to modify schools in an integrated, coordinated, and coherent fashion to achieve clearly

stated educational outcomes (Fuhrman, Elmore, and Massell, 1993, cited in Hoy and Miskel, 2008). The basic priority of systemic reform is to define ambitious curriculum content and achievement standards in core academic subjects and to tightly couple the goals with an assessment program. The alignment of curriculum content and achievement standards with assessment procedures creates an accountability system for monitoring the efficiency and effectiveness of K-12 schools.

After the onset of the Asian Financial Crisis in 1997, major education management reform initiatives were launched to foster creativity and innovation in students. The first one was *‘Thinking Schools, Learning Nations’*. The education reform strategies included: (i) teaching of critical and creative thinking skills; (ii) the reduction of subject content; (iii) the revision of assessment modes; and (iv) a greater emphasis on processes instead of on outcomes when appraising schools. The second initiative was the *‘Masterplan for Information Technology in Education’* to promote information technology in teaching and learning in all schools. This initiative aims to establish whole-school networking and to provide computers to students and teachers (Tan and Gopinathan, 2000).

Hong Kong embarked on the first wave of education management reform during the 1970s by using a top-down approach and increasing resource inputs, aimed at improving language teaching and learning, teacher quality, and curriculum development, as well as teaching and learning conditions. However, the impacts of the first wave of reform were limited, because the reform ignored school processes and school-based needs (Cheng, 2001). To address these deficiencies, Hong Kong initiated in 1997 a second wave of education management reforms, characterized by: (i) school-based management approach (schools are not homogenous; schools are the unit of improvement); (ii) bottom-up reform (school principals and teachers are at the forefront of education management reform in terms of education practices and quality improvement); (iii) quality assurance and accountability (schools have the autonomy and flexibility to use public resources to implement activities within a framework of accountability); (iv) awareness of the need for research (the use of knowledge and research to support policy discussion and formulation and to improve education practice). At present, Hong Kong is embarking on the third wave of education management reform in response to technological, economic, social, political, cultural, and learning globalization. The aim of the reform is to support students to become citizens of multiple intelligence (CMI), i.e., within the Howard Gardner (1993) framework of seven human intelligences, including: (i) musical intelligence, (ii) bodily-kinesthetic intelligence, (iii)

logical-mathematical intelligence, (iv) linguistic intelligence, (v) spatial intelligence, (vi) interpersonal intelligence, and (vii) intra-personal intelligence.

A large body of research points to cognitive and non-cognitive skills as being important in the process of development, over general educational access. The assumption of such research is that education plays an important role in creating a skilled workforce and an educated population is more productive because education forms modern values, attitudes and behavior for a modern industrialized economy. Hanushek and Woessmann (2008), however, argue that expansion of education attainment has not guaranteed improved economic conditions. They maintain that cognitive abilities of the population – rather than mere education attainment – are powerfully related to individual earnings, to the distribution of income, and to economic growth. More and more policy discussion, therefore, focuses on education quality. Cognitive skills are considered as ‘hard skills’ of cognitive ability in areas such as literacy and numeracy, which are measured by academic tests (Gutman and Schoon, 2013). Thus, cognitive skills are associated with intelligence and the ability of problem solving (Falch et al., 2012). Indeed, the aims of education are to develop a well-rounded person and an engaged human being. Overall, acquiring cognitive skills is also the main objective of education. Most assessments of school reforms underline the gains from reforms as measured by the ability of students to perform well on standardized achievement tests (Heckman and Rubinstein, 2001).

Education plays an important role in creating a skilled workforce. An educated population is more productive because education forms modern values, attitudes and behavior for a modern industrialized economy. Hanushek and Woessmann (2008) argue that expansion of education attainment has not guaranteed improved economic conditions. More and more policy discussion focus on the ‘quality’ of education: (i) Cognitive skills are considered as ‘hard skills’ of cognitive ability in areas such as literacy and numeracy; (ii) Non-cognitive skills are also important for productivity and social outcomes; and (iii) Learning is a lifetime affair. Learning starts in infancy long before formal education begins and continues throughout life.

3.2. Learning and teaching process

Wideen (1994) identified the context of educational change, which is based on five areas – curriculum reform, school improvement, school effectiveness, teacher research, and teacher development. Curriculum reform involves better use of curriculum materials. School improvement reforms consider a school to be the unit of change. Therefore, such reforms aim to

solve the problems and the internal conditions that the school is facing. The school effectiveness approach focuses on student achievement. The teacher research approach requires the teacher to conduct research to improve teaching. The teacher development approach focuses on the teacher as the innovator and change agent. In all these approaches, the teacher remains central to the process of school reform.

However, several recent studies show that non-cognitive skills are also important for productivity and social outcomes. Drawing on a body of recent scholarship regarding education and training, Heckman (1999) pointed to the fundamental misconceptions about the way socially useful skills embodied in persons are produced. Numerous instances can be cited of high-IQ people who failed to achieve success in life because they lacked self-discipline and low-IQ people who succeeded by persistence, reliability and self-discipline (Heckman and Rubinstein, 2001; and Heckman et al. 2013). Jencks (1979) found that personal traits such as leadership, industriousness and perseverance had substantial impact on individual earnings and educational attainment when holding family characteristics and cognitive skills constant.

Citing recent research in psychology and cognition, Heckman (2000) stressed the importance of skill formation during the early pre-school years when human ability and motivation are shaped by families and non-institutional environments. Skills formed during early infant and preschool years can translate into success or failure in school and in post-school learning. For that reason, families and environment play a crucial role in skill formation at an early stage. Much of the effectiveness of early-childhood interventions can contribute to the development of non-cognitive skills and create motivation later on in life (Heckman, 2000). Learning continues after school. This is known as learning by doing and workplace education. Post-school learning accounts for as much as one-third to one-half of all skill formation in the modern economy (Heckman, Lochner & Taber, 1998).

Effective education reforms require dealing with different components of the education system, such as (1) school and teacher characteristics; and (2) child and family characteristics. Government policies can have direct (and indirect) impacts on school and teacher characteristics. Policies aimed at changing teacher and school characteristics are those that focus on the supply side of schooling. Glewwe, Hanushek, Humpage and Ravina (2014) examined a total of 79 studies related to the impacts of a broad range of variables on student learning as measured by test scores. There are over 30 school and teacher characteristics that can have impacts on student test scores. They can be classified into three broad types: (1) school

infrastructure and pedagogical supplies; (2) teacher (and principal) characteristics; and (3) school organization.

The studies reviewed by Glewwe and his colleagues found that school infrastructure and pedagogical materials have positive effects on test scores. Most of the studies (36) provide strong evidence that textbooks and similar materials (workbooks, exercise books) increase student learning. The next most commonly estimated impacts are those of basic furniture (desks, tables, and chairs) and of computers and electronic games. Adequate amounts of desks, tables, and chairs raise student test scores. However, the results for computers are less clear. This suggests caution when using scarce funds for purchasing computers and related products. Electricity also has a positive effect on student learning, as electric lighting helps students read, see the blackboard and fans keep the classroom cool. Blackboards and visual aids also have similarly positive effects.

Teacher (principal) characteristics are crucial in determining students' learning outcomes, as there is strong evidence that with the same funding, some schools are of high quality, while others are of low quality with the variance accounted for by differences in principals' competence levels. Glewwe et al., (2014) reviewed research during the last two decades related to the causal impact on students' years of schooling and learning by such factors as basic school and teacher characteristics (e.g., a teacher's level of education, experience, knowledge, gender, in-service training and teaching degree, as well as pedagogical methods used), which corroborated these findings.

School organization includes class size (student-teacher ratio), teacher absenteeism, the frequency of assigned homework, school meals, multi-grade teaching, hours in the school day, tutoring, salaried teachers, contract teachers, expenditure/pupil, cost of attendance, total school enrolment, group work, the frequency of teacher-provided examples, and student attendance.

Improving learning outcomes in developing countries requires the implementation of policies aimed at improving child and family characteristics. Although child and family characteristics are often difficult to change through government policies, some policies aimed at improving child health can have important effects. Thus, Glewwe (2014) classified these policies into three broad types: policies that alter student characteristics before they begin primary school; policies that are designed to alter student and parent behavior; and policies that attempt to change the way that schools are operated in terms of both the management structure and incentives received by teachers and school administrators.

Child characteristics in the first years of life can most easily be changed through early childhood education (ECE) and child health and nutrition programs. There is strong evidence that preschools can have positive effects on children's education and on their income-earning outcomes in the long run. As many children in developing countries suffer from malnutrition and poor health, children's learning outcomes depend on their health and nutritional status. Alderman and Bleakley (2014) reviewed the impact of poor health on education outcomes in developing countries and identified malnutrition and parasitic infections as key dimensions that have potential not only to increase years of schooling but also to increase learning per year of school. Public interventions to improve child health lead not only to increased economic efficiency by addressing externalities but also reduce inequality, as they target poor households. Learning is a continuous process for individual students; similarly, social development is based on the experience and understanding students can achieve during their schooling (Barron et al., 2015).

3.3. Student assessment and school inspection

Moreover, Paulston (1976) compares education reforms to Kuhn's paradigm shift or the shift in conceptual world-views. As a paradigm shift, education reforms bring new conceptual frameworks, introduce new educational aims and views on how people learn, and require the adoption of new teaching and assessment approaches and materials, etc. (Irez and Han, 2011).

Hang-Chuon (2015) proposes the following key elements of systemic education reform: (i) teacher policy reform, (ii) school inspection; (iii) learning assessment; (iv) curriculum review; and (v) improvement of school infrastructures.

4. Financial management reform

Education Financial Management Reform involves more resource allocation to the education sector, while making sure that school budgets and additional resources are well managed at the school level. A government may choose to restructure its expenditures to reallocate resources from higher education to lower levels of education (Tiongson, 2005). Financing reform may also include a transfer of budgetary resources directly from the National Treasury to schools or to improve financial procedures and governance to require better learning outcomes (Hang-Chuon, 2016).

The process of education management reform is complex and dynamic. There are many factors that influence educational change. Change will only take place when more factors support the implementation of

education management reform. Fullan (2007) argues that influencing factors often have a different impact in different settings of change. Fullan makes the argument for coordinating top-down and bottom-up strategies to create a more comprehensive and coherent model for effective change to take place.

Coordination between top-down and bottom-up reforms requires the following actions. Firstly, at the national level, education management reform measures should focus on providing financial support and encouragement, as well as exerting external pressure on, and support for, schools to implement reform programs. External support such as in-service training programs to improve teaching methods support new teachers and provide mentoring for those in need. Secondly, at the school level, school organization, such as a positive school climate, and teachers who are supporting each other by exchanging ideas and experiences through a learning community will facilitate reform programs.

Fullan (2007) elaborated on conditions required for whole system education reforms to occur successfully. In this respect, he believes that reform should put educators and students at the center. Reform should take place in the classroom for improvements in learning to take place. Thus, Fullan (2007) argues that the day-to-day culture of school systems is the critical element that propels and sustains reform. Therefore, intrinsic motivation, instructional improvement, teamwork, and all-ness are the anchors of school reform. According to Fullan, successful educational reform requires an established rapport between top-down/bottom-up strategies. This needs to happen locally between district and schools and provincially between government and school boards. The forces of change are complex, but a recommended approach is to explore combined strategies, learn from them, and work towards refining and strengthening abilities to work together.

Finally, reforms need to consider that there are four critical elements of change: people, practices, processes, and policies. People must engage change in a context of useful practices and enable policy support that allows all the actors to work together (Suzanne Stiegelbauer in Anson, 1994).

4.1. Education finance allocation

Fägerlind and Saha (1989) stated that education resource allocation reform results in ‘a fundamental alteration in national education policies. This in turn causes major changes in some or all of the following: (i) increases in the national allocation of resources to the field of education; (ii) increases in the allocation of resources within the existing education system to other levels of the system; (iii) the percentage of students completing different levels of the

education system; (iv) the percentage of students from different social strata or the percentage of female students that complete different levels of the education system; and (v) the aims of curricula and content.

There has been impressive progress in expanding total exposure to schooling (enrolment, retention, grades completed) in nearly every developing country. But in many developing countries, learning levels remain low and there is no evidence of the same type of rapid uniform progress. In some countries, the situation has worsened. However, in other countries, such as Vietnam, learning outcomes are at or above OECD levels (Pritchett, 2015). The Education Commission (2016) considers that by 2030, more than half a generation of young people will be denied a future because they will not have the skills needed for the changing job market. The Commission considers that ‘for any improvement in the design and delivery of education to succeed, they must be underpinned by a system that is built to deliver results’. Therefore, systemic educational management reform is crucial for developing countries to ensure high and sustained economic growth. Strong result-driven systems are those, which ensure coherence across goals, policies, and spending as well as a clear route from policy to implementation and effective governance and accountability.

Education is a complex system embedded in a political, cultural, and economic context. The political, cultural, and economic dimensions of education are inter-dependent and influence each other. Therefore, education is systemic in nature. Some previous studies reveal that the key to successful education reform is to embark on systemic reform, which deals with complex entities to resolve multiple elements and problems simultaneously (Anson, 1994; Fullan, 2007; Education Commission, 2016). Recent research has also shown that increasing investment in educational inputs does not necessarily lead to improvement, because education performance depends on systems management (Pritchitt, 2015). If the education systems are weak, adding more resources will not lead to quality improvement. Pritchitt (2015) provides the following explanation:

- Indonesia doubled teacher salaries and a rigorous evaluation shows exactly zero impact on learning.
- India increased federal spending by tenfold and overall per pupil expenditure tripled and yet a decade of ASER assessments (and other sources) show that learning is worsening.
- A rigorous evaluation of reducing class sizes in Kenya by hiring contract teachers showed learning improvements when implemented by an NGO – but the exact same program had zero impact when implemented by the MOE.

- Additional textbooks in any subject may have zero impact unless they were accompanied by changes in teacher incentives.
- The Commission found that ‘for any improvement in the design and delivery of education to succeed, they must be underpinned by a system that is built to deliver results’.

4.2. Financial autonomy and accountability at school

Anson (1994) proposed a systemic school management reform framework that includes many aspects of education services, such as implementation of assessments, teachers’ professional development, School-Based Management (SBM), the use of technology etc. Fuhrman (1994) regards the concept of systemic reform as covering curriculum framework, student assessment, instructional materials, teacher licensing and staff development. Tiongson (2005) considers that education reforms concern policy changes to expenditure structure, financing schemes, and management. Ouellette (2000) defines systemic reforms to include: content standards, performance standards, student assessments, accountability systems, teacher preparation, professional teacher development, governance structures, and public support. Fullan (2007) is of the view that successful implementation of systemic reform requires clarity of goals of the reform, institutional capacity, financial and technical support to teachers, principals and other stakeholders, as well as a sound monitoring and evaluation mechanism.

Many definitions of systemic education management reforms refer to school-based decision-making or School-Based Management (SBM). SBM is the decentralization of authority from the government to the school level. Responsibility for, and decision-making authority over, school operations is transferred to local agents. Such agents can be a combination of principals, teachers, parents, sometimes students, and other school community members. SBM reforms also aim to empower principals and teachers and strengthen their professional motivation, thereby enhancing their sense of ownership of the schools where they work. SBM aims to improve accountability by: (i) granting schools autonomy to make decisions in order to improve the compact between those who oversee service provision and those who deliver it; and (ii) inviting parents to participate in the decision-making process in order to increase their voice in the delivery of services (Bruns et al., 2011).

Bruns et al. (2011) provide a comprehensive analysis of education service delivery from the perspective of the principal-agent problem. Ministries of Education are the agents of the citizenry, while parents and students can be considered as principals, who try to demand education

quality. The users of education services hold the state accountable. At the same time, the state also holds service providers (schools and teachers) accountable for their performance. The World Development Report 2004 describes a framework for a three-cornered relationship between citizens, politicians, and service providers. The service provision and accountability relationships among these actors are complex. There are many groups of actors involved. The incentives and accountability relationships that work for one group may be different from those that work for other groups (World Bank, 2003). Thus, SBM can be considered as a form of bottom-up systemic education management reform.

There is a trend in many countries to increase autonomy, decentralize responsibility, and encourage responsiveness to local needs in order to improve performance (Bruns et al., 2011). However, from time to time, the market for education suffers from market failures. This requires the government to intervene and rectify the problems. In order to improve education services, many countries have adopted a set of three accountability reform strategies (Bruns et al., 2011):

- Information for accountability: This refers to the generation and dissemination of information about school rights and responsibilities, inputs, outputs, and outcomes;
- School-based management: This refers to the decentralization of school-level decision making – autonomy – to school-level agents;
- Teacher incentives: This refers to policies that link pay or tenure directly to performance.

Tan and Gopinathan (2000) provide a synthesized review of a series of education management reforms in Singapore. Since the mid-1980s Singapore has implemented a series of education management reform programs, aimed at enhancing national economic competitiveness in the global economy. Education management reforms in Singapore focus on increased school autonomy and interschool competition. Initially, the Ministry of Education granted eight (or five percent of 163) secondary schools autonomy and flexibility in recruitment, deployment and reward of staff, finance, management, and curriculum. However, these independent schools were criticized for their elitist nature and for charging high fees. This then led to the creation in the 1990s of 18 autonomous schools, which charge more affordable fees, but enjoy less operating autonomy.

4.3. Education budget audits

The budget audit aims at improving the governance in MoEYS and it helps to accomplish the objectives and missions of the technical departments and

provincial/district offices of education. The results of the financial audit enhance systemic and disciplined attitudes to evaluate and improve the efficiency and effectiveness of the intervention strategies. The audits will advise on the risk management and mitigation plan and levels of control and governance process. MoEYS is concerned about the effectiveness of the service delivery to school level, especially schools in disadvantaged locations.

The increase of teacher salaries and the school improvement fund in the last few years enabled the schools to build capacity to manage and respond to the results based on the school development plan. The issues in school budget management are deeply rooted in the school management cultures in the past decades of plan-oriented measures and lack of flexibility since the budget has been prescribed by the upper level for schools to spend. Schools are categorized by their level, such as pre-school, primary school, lower secondary school, and upper-secondary school with various levels of management even if they are located in the same compound. This creates fragmentation of management and causing staffing inputs for the budget management at different schools. Capacity assessment of the schools is needed as each school has its own uniqueness and leadership and management styles based on staff and locations.

The future strategic directions should enable the schools some level of autonomy of budget execution in line with the actual needs and emerging responses to classroom and teacher performance needs for improved teaching and learning at school level. Increase of the education budget per student is necessary to improve the school environment and management. It has proven ineffective when the budget has been earmarked for some particular activities that sometimes schools found unnecessary, but they have to spend as it was given rather than requested to fulfil the needs.

5. Human resource management reform

It requires the coordination between professional teacher training at the national level with human resource development at the school level. The ultimate objective is to ensure improvement in student skills. Systemic reform requires not just supporting infrastructure, but also capacity building at all levels, especially at school levels (Levin, 2010). It also requires coordination with all stakeholders. Comprehensive, systemic reform requires reconfiguring both human and material resources; thus, it must embrace deeper visions, bolder proposals, and sustained innovations (Kurth-Schai and Green, 2008). The Education Commission (2016) confirmed that education reforms must put educators and students at the center of reform programs. Reform measures should foster intrinsic motivation and capacity

enhancement of all stakeholders. Fullan (2007) considers that the success or failure of educational change is the result of a dynamic process involving interacting variables over time, and he suggests that successful reforms require coordination between top-down and bottom-up reforms.

5.1. Pre-service training

Pre-service training is critically important to prepare our student-teachers to be ready to build competencies for pupils for 21st century developments. The relevancy of subjects such as mathematics must be assured, meaning that we cannot teach mathematics in an abstract way for the coming decades but provide context of how a certain mathematics problem could be used in the real world. In other words, students are taught the concept of mathematics and how it could be used to solve different problems in their daily life and/or work. OECD (2012) argued that teachers must be adept at using different methods and/or change their approaches to optimize the learning. It also posited a question: ‘What teacher preparation programs are needed to prepare graduates who are ready to teach in a 21st century classroom?’

World Bank (2014) posited a framework known as the SABER-teacher policy goal. The framework is mainly to improve education delivery associated with teachers. One of the elements in the framework is preparing teachers with useful training and experience at Teacher Training Center (TTC). The author argued that the teacher trainer must 1) enhance the content mastery and student-center pedagogy, 2) incorporate teacher standards in their curriculum, and 3) employ interactive teaching methods. It is suggested that the TTC must provide a complete set of role models in teaching to student-teachers so that they can replicate the models when they become teachers at school.

The tendency of having a bachelor degree (or equivalent) to enter the teaching force is now considered a priority in Cambodia. This practice has been adopted by developed countries such Korea, Japan, and Thailand. Then, it is very important that the TTC must be well prepared to train those new graduates to become an excellent force and mainly ensure that they can be a 21st century teaching force. OECD (2012, p.52) recommended that teacher trainers must be well equipped with INNOVATION inspired by 1) research and evaluation, 2) entrepreneurial development, 3) other teachers and principals, and 4) students, parents, and communities.

5.2. In-service training

From the scratch education platform going back to the 1980s, the quality of education in Cambodia is still at a most challenging stage. On the one hand, the teaching force is still a mixture of different levels of qualifications (Ayres, 2000) while we are striving for a knowledge-based economy which requires highly-qualified teachers to teach the younger generation. It is necessary that the government takes full account of existing teachers and provide them the services of continuous professional development (CPD) also known as in-service training. While professional development paradigms have changed considerably in recent years, since the 1980s, the Cambodia CPD system still uses one-size-fits-all workshops, offered in contexts removed from schools and students, and focused on various topics that often are not relevant to teaching and student learning. These traditional approaches do not change teacher's behavior or student learning outcomes. It is crucial therefore to change the way the teachers are provided the professional development to optimize teacher performance and student learning.

It is consensually accepted that adult learning takes place if they find a meaningful goal for what they are doing, when the learning focuses on problem solving rather than the content, when they have a feeling of belonging, and when they have a choice. For being meaningful, professional development must allow teachers to act decisively and constructively in order to direct their professional development. Professional development policy and programs need to ensure the conditions and enable the environment for teacher professional learning as a team or as an individual. As the teaching takes place in the school, principle's role in teacher professional development is indispensable. The school principals need to provide the school spaces and supportive organizational routines, including teacher social networks, in school for the teachers' learning.

Drawn from this changed conceptualization, developed countries such as Finland, Hungary, and Scotland provide CPD to their teaching forces under a compulsory format for three days, 120 hours, and 35 hours respectively. For some countries like Singapore, teachers are entitled to payment vouchers to choose the available courses which meet the demands of education reform. The formation process of teacher professional development needs to engage teachers and school directors. Teacher Professional Development can be exercised by the top-down management or a bottom-up approach. Teacher professional development needs to be carefully designed including the mechanism of providing accreditation to educational institutions. World Bank (2015) found that Provincial TTCs

performed better than Regional TTCs. Then, it is a question of how to accredit and upgrade the current institutions and register new educational institutions for CPD centers. In some countries, such as Australia, they provide virtual training to educators so that it is more convenient for them to take courses at their own pace.

Effective teaching professional learning must link to incentives or a reward system to advance or promote teaching and learning of the teachers. The TCP is a career orientation system for teachers and school leaders and administrators. TCP should provide clear career pathways in different streams, which allow teachers to choose and advance their careers. TCP improves salary structure-related career progression to attain professional skills. Therefore, TCP encourages educational staff in professional development and advancement.

5.3. Teacher performance assessment

Cambodia's education system needs to take its critical next step: fairly and accurately measuring teacher performance. Successful reforms in teacher pay, career advancement, professional development, retention, and other human capital systems that lead to better student outcomes depend on it.

In 2001, Singapore's Ministry of Education (MOE) overhauled its existing teacher evaluation system and replaced it with a more comprehensive approach, which it called the Enhanced Performance Management System. The new system represented a major shift from focusing teacher evaluation on observable characteristics, such as subject matter expertise, classroom management, and instructional skills, to emphasizing the underlying characteristics, or "competencies," that lead to exceptional performance.

Ministry officials responsible for hiring and school leaders responsible for leading teachers use the competency model in conjunction with the achievement of performance goals at each stage of employment to:

- Hire and train aspiring teachers;
- Set annual competency achievement targets;
- Evaluate competency levels throughout the year;
- Match each teacher to a career path; and
- Determine annual bonuses.

6. Conclusion

From the above review, we can conclude that systemic education management reform covers activities that concern all aspects of education

management reform, such as administrative and general management reform, academic management reform, financial management reform and human resource management reform (MoEYS, 2017). In short, a systemic education reform requires a strong systemic link between education policies at the ministerial level to teacher training institutions and ultimately to schools and classrooms.

Ideally, education reform should mainly take place at the school level. There is a trend in many countries toward increasing autonomy, devolving responsibility, and encouraging responsiveness to local needs, all with the objectives of raising performance levels through the implementation of School-Based Management. Therefore, developing countries should seriously consider embarking on education reform to improve school and teacher characteristics, as well as child and family characteristics.

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ⁱ This paper is submitted in the author's personal capacity as a scholarly researcher. The information presented, and opinions expressed herein are those of the author and do not necessarily represent the views of the Royal Government of Cambodia or the author's affiliation therein.



Ministry of Education Youth and Sport
Education Research Council

Article

Cognitive domain, level of difficulty and topic distribution of the science stream in the national exit examination in Cambodia

Chan Ourn Chey ^{a, b} and Vicheanon Khieu ^b

^aResearcher, Graduate School of Science, Royal University of Phnom Penh and

^bResearch Fellow, Education Research Council, MoEYS
(Correspondent: ch.chey@gmail.com)

Received 29 November 2017; Accepted 28 December 2017

Abstract

In 2014, the Ministry of Education Youth and Sport (MoEYS) made a critical reform in order to improve the quality of general education through the strict control of the national exit examination at upper secondary schools. This paper is a desk review research based on the analysis of all the questions in the science subjects included in the 2015 examinations. It specifically focuses on the analysis of cognitive domain, level of difficulty and topic distribution of the question items in each subject in the science stream. The research found that; (1) The cognitive domain of the question items was relatively low (remembering and understanding level); these questions were implicitly designed to measure students' capacity. The absence of questions to measure students' ability to apply, analyze, evaluate and create new ideas was found in all science subjects; (2) The exam papers provided by examiners in 2015 were moderately difficult; but physics was found to be the most difficult if compared to chemistry and biology. (3) Topic distribution of the three subjects was not homogeneous. Questions were dominant in some sessions while others were skipped. For better planning and policy implications, further studies of this type will be needed since, although this shed some critical light on exam affairs, it has limitations of itself. With utmost caution, the study suggests that the

development of exam questions should focus on a wider spread of exam questions covering the content of the whole textbook and questions set each year should be analyzed against students' results in order to assess the reliability and validity of the questions for considering the inclusion or exclusion of those exam questions in the following years.

Keywords: Exam Review, Assessment in Science Subjects, Test Items in Science, National Exam.

Citation: Chey, C. O., & Khieu, V. (2017). Cognitive domain, level of difficulty and topic distribution of the science stream in the national exit examination in Cambodia. *Cambodia Education Review*, 1(1), 33-48.

1. Introduction

Education is touted as a tool for achieving sustainable development and it means changing peoples' knowledge, innovation, attitudes and behaviors. The Hyogo Framework for Action, adopted by 168 nations in January 2005, has recognized and encouraged governments and civic society to apply education to build a culture of safety and resilience. Education is also essential for people at all levels in a life-long learning perspective (Nakileza, 2007). The Royal Government of Cambodia (RGoC) considers education as one of the most important sectors for poverty alleviation (MoP, 2004). The RGoC, therefore, has given a strong commitment and effort to enhance the educational sector by introducing a policy of 12 years of free general education (ADB, 2014). After its national policy reform in 1996, the formal educational structure of Cambodia has been divided into 6+3+3. This refers to 12 years for the completion of general education that formulates into six years for primary education (grade 1 to 6) and six years for secondary general education (grade 7 to 12). Secondary education includes three years each for lower secondary education (grade 7 to 9) and upper secondary education (grade 10 to 12). This system does not include at least one year for pre-school education (pre-school) for children from three to below six years old and university education of four to five years. The education system consists of the development of sport, information technology education, research development and technical education (MoEYS, 2012). The policy of the RGoC has been targeted to ensure all children have their rights to access quality education for at least nine years in public schools for free of charge (Chhinh and Dy, 2009).

The fifth mandate of the RGoC approached human resources as the capital for realizing the industrial development plan in order to drive Cambodia from a lower middle-income country to an upper middle-income country by 2030 and a high-income country by 2050 (MoP 2013). In line with the government reform, under the new leadership of the MoEYS in this fifth mandate, the Ministry has set up a very clear systematic reform program to improve the quality of education. In initial public appearances as the Minister of Education, H.E. Dr. Hang Chuon Naron, Minister of MoEYS reiterated his eight-point reform agenda in his speeches, keynote addresses and presentations. These measures are: strengthen in-depth reform of public finance management, strengthen personnel management, strengthen examinations across the board, create a think-tank for the education sector, reform higher education, raise quality, develop technical and soft skills, and reform physical education and sport. As a result, the educational sector has gradually improved under the efforts of the MoEYS through formulating clear policies and strategies (MoEYS, 2016).

The educational system is operated by state schools; but private education has been also provided with services at all levels. Furthermore, most of the private schools are offering pre-school education and general education; they have been operated by the communities of ethnic and religious minorities including Chinese, Muslim, French, English and Vietnamese. The private schools are available mainly in the capital of Cambodia, but they are recently also providing their educational services in various provinces (Bray, 1999). Cambodian general education is based on a national school curriculum that consists of two main parts: basic education and upper secondary education. The basic education curriculum is divided into three cycles of three years each (UNESCO, 2011). The MoEYS has administered basic education in Cambodia from national to local level. According to the Constitution of Cambodia under Article 65, page 14, the state shall protect and upgrade citizen's rights to quality of education at all levels, guaranteeing that all citizens have equal opportunity to earn a living. The State shall respect physical education and sports for the welfare of all Khmer citizens (Constitutional Assembly, 1993, p. 14). In efforts to enhance schools and supply better learning for students, education policymakers and planners have sought to increase schools' public accountability, measured particularly by students' test or national examination scores (Robinson, 2010).

This research aims to determine the future of grade 12 students for continued learning and employment. Since procedural aspects of the exams have been significantly improved and applauded by the public, the next effort is to make use of the exam results by analyzing the strengths and weaknesses of the system to improve teaching and learning. Therefore, this paper examines only the exam questions by subjects in the year 2015. The purpose of the review exercise was to help the MoEYS to gain better design of test items in each exam paper, and to improve curriculum development, instruction and assessment in its on-going curriculum and teacher reform. In order to achieve our research objective, we review the exam questions in comparison to the textbooks, the level of difficulty of each question and the types of question words against the Bloom taxonomy in order to understand the level of thinking. The review reveals that the level of cognitive thinking are presented only at level one and two, the level of difficulty are easy and moderate and the distribution of the topic areas are not well distributed. Moreover, the exam papers lack several characteristics of good exam papers.

2. Experience of national exit examinations in Cambodia

According to Dempster (2012), public exit examinations arranged in the final year of schooling are used for a number of different purposes in most education systems. They formulate the standards to be accomplished by teachers throughout a nation by a central specification of the objectives and curriculum to be evaluated. Such a document becomes public knowledge, and permits comparability across countries. Moreover, the results are important to select students for further education, or for entry into the workforce. This role plays a crucial part in future careers and life chances for school leavers. Examinations provide certification of achievement at the end of schooling. In particular, job opportunities are often reliant upon possession of the certificate confirming successful completion of schooling. Examination results are released publicly and used to ensure accountability of schools and the educational system. Moreover, exit examinations are used to modify and manage curriculum and methods of teaching in positive and negative ways. In particular, curriculums are designed so that they are “examinable”, and teaching in the final years of schooling may be examination-dominated (Harlen, 2007).

In 2014, the MoEYS firstly took stringent measures to prevent cheating during the national exit examination at upper secondary school.

As the result, only one-fourth of 93,000 students passed while more than 22% received a grade E, fewer than 3% received grades B to D, and only 11 students received a grade A (MoEYS, 2014). Compared to the national exit examination in 2012 and in 2013, around 80% of the students passed. The experience of the differences has drawn attention to measures to be taken for preventing exam cheating and to enhance the quality of general education in Cambodia. For example, strict control of exit examinations and changing students' perceptions of cheating are required to convince the students that the main point is not passing the exam but acquiring real knowledge during their schooling (Khieng, 2015). The quality of general education remains a key concern when considering the high rate of enrollment at higher grades. At lower secondary school, 87.4% of the students passed out from primary level. Almost 34% of the students discontinued their education even at lower-secondary school; the provinces with relatively poorer performance included Stung Treng, Rattanakiri, Mondolkiri, Kratie, Odtar Meanchey and Pailin (MoEYS, 2016).

According to Chhinh *at al.* (2015), the recent policy reform of the national exit examination at upper secondary school has focused the strong effort of the RGoC to eliminate or/and to stop irregularities such as cheating, and leakage of examinations. Under strict examinations, only 40% of students were capable to pass the national exit examination, as compared with passing rates of approximately 80% in the past decade (MoEYS, 2014). The use of observers from the Anti-Corruption Unit has provided the general public with uncontestable evidence that student learning outcomes are relatively poor. The poor performance of Cambodian students were initially and significantly recognized by the government and public when a series of national assessments were conducted starting in 2006 (MoEYS, 2006). In the past, students can copy answers from other students or obtain cheat sheets on their phones or from being thrown in through the window (Naren, 2004).

3. Methodology and analysis

This is a desk review research where the researchers worked to review each question which appeared during the national exit examination of upper secondary school in 2015. In these recent years, Science, Technology, Engineering and Mathematics (STEM) education have been promoted in Cambodia; the analysis of the science stream becomes, therefore, valid in this research. It is a fact that subjects such as physics, chemistry and

biology are the core subjects of STEM subjects. In Cambodia and other countries around the world, STEM careers are quickly becoming highly sought after and employment positions are no exception.

Produced by Saint Blanquat & Associates, Co., Ltd and funded by the British Embassy Phnom Penh, a 31-page booklet identifies the top 20 STEM careers in Cambodia over the next 10 years and includes information on education/training required, where to study, and what salary to expect. For the analysis, the author reviewed the level of cognitive thinking using Bloom's taxonomy, the level of difficulty, and the topic distribution of text books at upper secondary school level. The result of this research is very crucial for the MoEYS to promote STEM education because Cambodia needs more young people skilled and qualified in these subjects to develop our human resources, the economy, and drive our nation's development. As Cambodia develops and the economy grows, the Cambodian populace must adapt by shifting toward the jobs that the job market offers. And for Cambodia to continue growing, we must encourage our young students to explore the demand of skills.

4. Results and Findings

4.1. Cognitive domain of test items in the science stream

In general, learning is a cognitive process. Therefore, the domain people link most to "learning" is the cognitive domain; this is the mental skills domain. It is the domain where you process information, create knowledge, and think. There are, however, other ways of learning. In addition to knowledge, people can learn attitudes, behaviors, and physical skills. These different types of learning create three distinct domains of learning. These three domains can be categorized as cognitive (knowledge), psychomotor (skills) and affective (attitudes). The various levels have often been depicted as a stairway to reference a progressive climb to a higher level of thinking. According to Bloom, each level must be mastered before moving to the next higher level (Table 1). Bloom believes a learner would have to first recall data and then understand it before he or she is able to apply it. Each level becomes more challenging as people move higher. The higher the level, one requires more complex mental operation. The original Taxonomy has been changed over the years. The most notable change is the terms used to describe the levels. The revised version changes the names of each of the six levels. The levels have also changed from nouns to verbs. The new version is as follows: remembering, understanding; applying, analyzing, evaluating, and creating.

Table 1. Description of cognitive domain

Domain	Description
Comprehension	The ability to understand and to grasp the meaning of information.
Knowledge	The ability to recall or recognize data/information.
Application	The ability to use learned information in a new situation.
Analysis	The ability to break down material into its parts so that its organizational structure may be understood.
Synthesis	The ability to put parts together to form a new whole.
Evaluation	The ability to judge the value or importance of material.

Adopted by Bloom *et al.* (1956)

Figure 1. Cognitive domain of the test items in the national exit examination in 2015

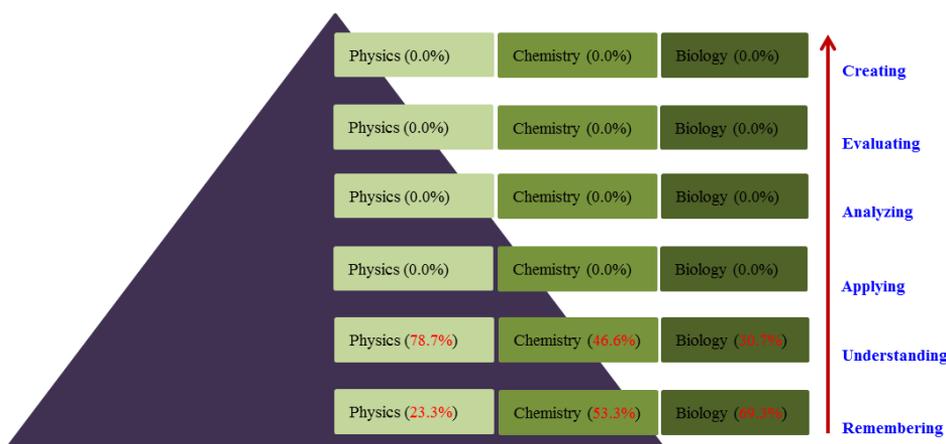


Figure 1 illustrates the cognitive domain which appeared in the national exit examination at upper secondary school in 2015. Three different subjects in the science stream were investigated, including biology, chemistry and physics. In general, the level of cognitive domain among the test items were relatively low; they were only at the levels of remembering and understanding. Many countries adopted Bloom *et al.* (1956) in the

curriculums of students at upper secondary level because they wish to equip their students with mental skills (knowledge), affective: growth in feelings or emotional areas (attitude or self), and psychomotor: manual or physical skills (skills). One of the eight-points of the reform agenda proposed by the Minister of Education, Youth and Sport, Hang Chuon Naron in 2014 reiterated the strengthening of examinations across the board. In recent years, the MoEYS has encouraged and motivated students to attend classes regularly, and not give them permission to stop during harvesting and the rainy season. Each school was also able to implement an education policy so that when students have missed class many times, they fail the exam or repeat the grade. Teachers should not take money from students for extra classes or to buy class materials (Sem and Hem, 2016).

Level of difficulty of test items in the science stream

The results of the review in the fields of physics, chemistry, and biology are shown in Table 2. In general, the examination papers were moderate. Out of the total, 40% of the test items in physics were the most difficult; none of them rated this level for chemistry and biology. For biology, the majority of the test items (80.0%) were assessed as at a moderate degree while more than half of the items confirmed the chemistry paper as at an easy level.

Table 2. Level of difficulty of the test items in the national exit examination in 2015

Level	Science Stream in the National Exit Examination in 2015		
	Physics (%)	Chemistry (%)	Biology (%)
Easy	29.3	60.0	20.0
Moderate	30.7	40.0	80.0
Difficult	40.0	0.0%	0.0

Cambodia is no exception. The national exit examination at upper secondary school is a form of an assessment of learning and measurement of education system performance. This aims to determine the future of students who completed the upper secondary in respect to continued learning and employment. This denotes both a mixed feeling of anxiety and excitement and a result of an educational outcome of 12 years of

schooling. The national exit examination for completion at upper secondary school is treated like a judgment day for the students at grade 12. For those who are confident on the exam day there is an expectation mixed with excitement. For those who are less confident, there is anxiety. In an experiment conducted during the examination in 2014 prior to the national education reforms, the students did not find it difficult to prepare for the examination.

4.2. Topic distribution of test items in the science stream

As you can see in the Table 3, the topic content for the three subjects in grade 12 text books were distributed into: four chapters for physics, six chapters for chemistry and eight chapters for biology. Overall, the test items were not homogeneously distributed; some chapters were more while other was less. For physics, out of the six questions, (66.7%) were related to thermodynamics while equal proportion was distributed to waves (16.7%) and electricity and magnetism (16.6%). However, while modern physics were included in the curriculum at upper secondary school, there were no questions regarding this chapter. But the disappearance of modern physics in the test items was due to this chapter not being taught in schools. In past experience, some parts of modern physics could not be completed in rural or remote areas due to floods, rains and the engagement of students with parents' agricultural activities. On the other hand, missing this part has affected students' enrollment in higher education. In particular, the national exit examination in 2015 seemed to be worried about students' difficulty in getting a high score if more questions were given from chapter two to four.

In reality, Gases and Organic Chemistry were not fully taught; so many students would have faced difficulty if the exercise were provided during the examination. The curriculums designed by the MoEYS were not fully applied by schools. An insufficiency of resources (finance and human) was the main challenge. Most students at schools located in the capital, towns and cities undertook shadow education in order to get more lessons from their own teachers as well as to have more practice on exercises in each section. The majority of students felt that they would not having enough time or be able to learn all the lessons as proposed in the curriculum if they did not take shadow education. In comparison, the students with poor living conditions could not catch up well with science because they did not learn all the sections as well because they did not have much chance to practice. In addition, many sessions which require laboratory work were skipped because there were no chemical subsistence,

expertise and equipment to allow students to practice. Many teachers only used some simple teaching materials prepared by themselves or via donations from Non-governmental Organizations (NGOs) to show the students. Without practice in laboratories, many students found it hard to understand the lessons as well as learning how to apply, analyze, evaluate, and create new ideas. They were mainly learning by memorizing and understanding.

Table 3. Topic distribution of the test items in the national exit examination in 2015

Topic distribution	Number of Questions	Percentage
<i>Physics subject</i>		
Chapter 1: Thermodynamics	4	66.7
Chapter 2: Waves	1	16.7
Chapter 3: Electricity and Magnetism	1	16.6
Chapter 4: Modern Physics	0	0.0
<i>Chemistry subject</i>		
Chapter 1: Kinetic Chemistry	1	16.7
Chapter 2: Solution and intermolecular force	1	16.7
Chapter 3: Acid and Base	3	50.0
Chapter 4: Chemical Equilibrium	0	0.0
Chapter 5: Gases	0	0.0
Chapter 6: Organic Chemistry	1	16.7
<i>Biology subject</i>		
Chapter 1: Gymnosperms and Angiosperms	0	0.0
Chapter 2: Growth and Response of Plants	0	0.0
Chapter 3: The needs of the body	3	30.7
Chapter 4: Function of the protein in the body	1	12.0
Chapter 5: Genetic material and Gens expression	2	45.3
Chapter 6: Evolution of living things	1	12.0
Chapter 7: Population and Community	0	0.0
Chapter 8: Ecology	0	0.0

In relation to biology, Growth and Response of Plants, Population and Community, and Ecology were skipped by the schools or teachers due to various reasons. The most common were insufficient time and lack of

expertise and equipment. For the safety of the students, the examination did not include that section because the examiners were aware that the students could not do well with questions about chapter 2, 7 and 8. Interestingly, the examiners did not include any questions about the gymnosperms and angiosperms; they may believe that those questions were too easy for the students. More questions were given in relation to the needs of the body (30.7%) and genetic material and gens expression (45.3%); the examiners considered the two chapters to be the must-have knowledge that students were required to know for their daily life, their job opportunity and their general knowledge. Similar to other papers, questions related to biology were more based on memorization rather than application, analysis, evaluation and innovation. In Cambodia, many students got up early in the morning at 4am in order to learn hard to memorize things before the examination. It has become common practice that students learn hard for the examination; but they need to commit to put their knowledge into action.

5. Planning and policy implication

To make better plans, the next examination paper should include three dimensions for improving the quality of the examination; they include cognitive domain, level of difficulty, and topic distribution. Similarly, attention should also be paid to the validity and reliability of the exam questions in each subject in order to ensure the exam if fair as an accurate and acceptable tool to measure student learning. Based on the TIMSS assessment frameworks in science, every item written for science measures the two things, the content topics or performance objectives, and its related cognitive domains. For natural science (physics, chemistry, and biology) assessments are organized in two dimensions: a content dimension specifying the domains to be assessed and a cognitive dimension specifying the thinking processes to be assessed (i.e., knowing, applying, and reasoning). Therefore, the assessment will respond to the expected learning outcomes and science curriculum standards at grade 12. The following recommendations can be made, with the aim to contribute to improving test item construction in the grade 12 examination:

Item types. In order to measure the level of achievements students have learned, test items should be classified into two categories, including constructed response items and problems that require demonstration for solutions. In constructed response items, students can construct and prepare their own responses to the questions based on knowledge and skills

developed during a course of study. Constructed response items allow students to explain their answers with reasons or based on evidence, draw diagrams, or display data. Meanwhile, the problems for solution item should also include the items tested in order to measure the skills in problem solving and critical thinking.

Cognitive domains. The set of skills and abilities to be demonstrated by candidates in responding to items across the topic areas should be organized into the three different levels (i.e. knowledge, applying and reasoning) or six levels of Bloom's revised cognitive domains. The knowledge domain presents students' ability to recall, recognize, describe facts, concepts, and procedures that are a foundation in science. The applying domain requires students to engage in applying knowledge of facts, relationships, processes, concepts, equipment, and methods in contexts likely to be familiar in the teaching and learning in the text books. The reasoning domain requires students to engage in scientific reasoning to analyze data, draw conclusions, solve problems, and extend their understandings to new situations.

Level of difficulty. To understand a full range of cognitive domain, fundamental scientific literacy and problem solving and critical thinking skills should be included in the test items. Therefore, the overall test items should include some relatively easy items and some challenging items, moderate items or hard items.

Content domains. According to science text books at grade 12, the test items should include all main topic areas that are to be included in the assessment. The structure of the test items should highlight the development of knowledge and abilities across the grade 12 or below. Each of the content domains in the Science Framework must be divided into topic areas and include several topics in each topic area. Each topic must receive approximately equal weight in terms of time allocated.

Validity. As the name indicates, the grade 12 exam is meant to measure student knowledge at the grade 12 level on all the subjects. However, it fails this objective due to the nature of the exam questions. The exam papers were developed in an absence of validity. Exam papers have been prepared by sacrificing quality over quantity to increase the pass rate. The preliminary analysis of the exam questions indicates that there are only a few questions in each paper and most questions only require students to recall knowledge or a formula in order to solve problems. As per practices in other systems, exam papers usually consist of around 10 pages with

questions ranging from easy to hard content and methods (CDE, 2008; SACE, 2012; BOSTES, 2015).

Reliability. Reliability is one of the most important elements of exam quality. It deals with consistency of the exam candidate. There has been no attempt to analyze the exam questions in the past years in order to understand which exam questions provide reliable results. Most questions appear in the exam papers in a similar format from year to year with changes only in the numbering of the questions. In order to ensure that the grade 12 exam responds to its purpose, it requires a systematic review of the assessment practices at all levels of education. By using expected learning outcomes of students at each school level, assessments and examinations should move from a norm-reference test indicating who scored higher than who to a criterion-reference test/exam indicating how much knowledge a student has gained over a course of study. Exam papers that can measure students' knowledge on the subject must be rich and diversified in content and format. There must be questions that require different levels of thinking, as stipulated in the Bloom Taxonomy.

6. Conclusion

High-stakes examinations have been practiced around the world for as long as formal schooling has been established in each country. The practice serves different purposes. In Cambodia, the national exit examination at upper secondary school is a form of an assessment of learning and a measurement of education system performance. In order to have a high standard of exam test items, several actions must be implemented: first at both the classroom level and ministry level such as teaching and learning domain, and in the classroom-based assessment and test item preparation domain. In brief, we need to redefine learning outcomes (based on the Bloom Taxonomy and 21st century competencies) in school curriculums, review lesson planning towards learning outcomes, and review applicable teaching methods and activities in inquiry-based learning. Then we apply the new instruction and assessment methods at classroom level. Finally, it is better to prepare the test items bank with details of the characteristics of each item first so the exam test items can then easily be selected from the items bank. Based on the result of desk review analysis, we can conclude that the cognitive domain of the test items in the science stream during the national exit examination at upper secondary in 2015 remained at a low level. The finding reflects that the current general education was constrained into remembering and understanding. In this light, the capacity

of students at upper secondary level was not at the level of applying or analyzing to evaluate and create new ideas. The name (grade 12 exam) indicates that this examination is a high-stakes exam determining the examinees' future. Those who fail the Bac II exam would be tainted in their education history as poor students. However, the exam papers poorly reflect students' competence. The exam papers lack several characteristics of good exam papers. In conclusion, the questions that appeared in the tests were not suitable for students to appreciate the basic concepts in science and its connectivity in daily life and facts. This situation will only encourage students to remember scientific concepts from the textbook without understanding their practical meaning either for study or for daily application. We provide our recommendation in two domains, including exam test items and teaching and learning processes and environment. In order to have a high standard of exam test items as per the above recommendation, several actions must be implemented first at both classroom level and ministry level such as the teaching and learning domain, and classroom-based assessment and test item preparation domain. In brief, we need to redefine learning outcomes in school curriculum, review lesson planning towards learning outcomes, and review applicable teaching methods and activities in inquiry-based learning. We should apply the new instruction and assessment methods at classroom level. Finally, we should prepare the items bank first with the details of the characteristics of each item then the exit national examination test items can be easily selected from the items bank.

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Ministry of Education Youth and Sport
Education Research Council

Article

The significance of the Food for Education Program: some findings from Chi Paing and Veal Malou primary schools in Tboung Khmum Province

Nalene Heng^a and Reno Thou^b

^aDeputy Director of Provincial Office of Education Youth and Sport in Tboung Khmum Province

^bHead of Research Office of the Royal University of Phnom Penh

Received 24 August 2017; Accepted 25 October 2017

Abstract

The Food for Education program (FFE) operates in 65 countries across the world. This program provided school meals to 18.2 million children in 2014. In order to implement the FFE, the World Food Program (WFP) works with schools and Non-governmental Organizations (NGOs). This paper explores the importance of the FFE at rural primary schools in Cambodia by focusing upon enrollment student performance, operation of the FFE Program, and perception of the students towards quality and services. The research found (1) The phase-out of the FFE was a tragedy for students at the primary level in rural Cambodia because the program helped to improve their test score and class attendance due to sufficient nutrition. (2) Each student received the same items of food under the FFE. Students received different types of support such as rice, cash, study materials and bicycles. (3) The students were satisfied with all different types of food provided under the FFE including rice, canned fish, vegetables, cereal and clean water. (4) The annual budget from the government agencies helped to sustain the FFE because the programs implemented by international organizations and NGOs were not permanently available.

Key Words: Food for Education (FFE), primary school, rural education, and Cambodia

Citation: Heng, N., & Thou, R. (2017). The significance of the Food for Education: some findings from Chi Paing and Veal Malou primary schools in Tboung Khmum Province. *Cambodia Education Review*, 1(1), 49-68.

1. Introduction

With the recent focus on universal primary education as a Millennium Development Goal (MDG), many developing countries have made dramatic improvements in primary school enrollment rates (Adelman *et al.*, 2007). Education is one of the key components of human capital asset which all the people need for their daily lives and future development. However, though basic education is compulsory for all children as a commitment of global leaders, millions of children in developing countries do not have the opportunity to enroll in school (Meng and Ryan, 2007). During 2000, the countries around the world made an international commitment to achieve eight ambitious development objectives. These eight goals were to eradicate extreme hunger and poverty; achieve universal primary education; promote gender equality and empower women; reduce child mortality; improve maternal health; combat HIV/AIDS, malaria and other diseases; develop a global partnership for development; and ensure environmental sustainability (UNICEF, 2014). All of them were directly and indirectly contributing to education. It is now a post-MDGs era; Sustainable Development Goals (SDGs) were formulated; the countries around the world on September 25th 2015 adopted a set of 17 goals to end poverty, to protect the planet, and to ensure prosperity for all as part of a new sustainable development agenda. Each goal has specific targets to be achieved over the next 15 years (UNDP, 2016).

The new target of Education for All (EFA) is Goal 2; it is formulated to “end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round by 2030”, and “ensure that

all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes by 2030” (UN, 2015). The FFE program and School Meals Program (SMP) have been implemented to provide meal services in schools. It is considered a key mechanism for improving school enrollment, reducing absenteeism, as well as repeating grades, and drop-out rates, particularly in the rural areas (Cheung and Berlin, 2014).

The FFE delivering meals available at schools and/or take-home rations as a condition of attendance has recently received renewed attention as a policy instrument for achieving the MDGs of universal primary education and reduction of hunger in developing nations. As the result, the FFE has attracted children to schools in exchange for nutritious meals school participation (Adelman *et al.*, 2008). In particular, the FFE programs, which consist of meals available at schools and in some cases of take-home rations and de-worming programs are considered as a powerful opportunity to achieve this aim, particularly in areas where schools’ participation of children from poor families are initially low (Cheung and Berlin, 2014).

In Cambodia, the FFE started in 1999–2000 as a pilot project in Takeo province with only in-school feeding and was phased in during the following three years. It was first undertaken by the World Food Program (WFP) and the World Bank and Cambodia’s Ministry of Education Youth and Sport (MoEYS). This large-scale project was initiated by the WFP under the Relief and Recovery Operation (Cheung and Berlin, 2014). Cheung and Perrotta (2011) continued that meals for breakfast were delivered free of charge at primary school among the children grades 1 to 6. At schools under the program, children were provided with one meal per day (breakfast) before the start of class. The meal was delivered according to the WFP’s standard ration of rice, food grain, vegetable, fish and vitamins to ensure meeting minimal daily nutrition requirements for children (Cheung and Perrotta, 2011).

With its large contribution of enrollment of the children at primary schools, the FFE expanded its support in 2001 and 2002, and the program was undertaken in cooperation between NGOs and the United Nations International Children’s Emergency Fund (UNICEF). The FFE then expanded its operation to 407 primary schools and with approximately 291,593 children in four provinces, i.e., Kampot, Kampong Cham, Kampong Speu and Prey Veng. They were provided with free meals during the school day. In addition, the WFP launched a scholarship

program such as food or cash entitlements to the poorest households that have children in grades 4 to 6. Scholarships were awarded to the children who achieved attendance of at least 80.0% per month (WFP, 2017).

The objective of FFE was to promote households' investments in the human capital of their children. In 2015, the WFP reached 448,300 children across Cambodia. Since 2011, this program has been annually assisted of 840,000 children, the WFP's school feeding program included meals and scholarship programs i.e., cash or take-home rice entitlements granted as conditional transfers to children with at least 80.0% of attendance. The WFP's nutrition program aims to contribute to reducing malnutrition through improved young child feeding and public health measures such as staple food (rice) fortification (WFP, 2015).

In late 2011, the FFE provided cash scholarships in the amount of 20,000 Khmer Riels per month for a period of 10 months for each school year. For scholarship as food, each child was funded with 10 kilograms of rice per month, for 10 months in each school year dating back to 2004. Approximately 88,900 children from 4,275 primary schools (or 62.0% of all primary schools) in the 15 provinces during the school year 2012–2013 benefitted from food and cash scholarships (Cheung and Berlin, 2014). Unfortunately, the WFP stopped sponsoring the FFE in 2012 and many schools could not continue this program due to budget shortfalls from the RGoC. This research, accordingly, aims to stress the importance of the FFE program and moreover focus upon enrollment and student performance, under the operation of the FFE Program as well as the perception of the students towards quality and services.

2. Conceptualizing the Food for Education Program (FFE)

In recent years, the FFE has operated in 65 countries across the world; they include Asia, Africa, America, Europe, and the Middle East. This program helped provide school meals to 18.2 million children during 2014. The WFP has been a key agency to implement the program by providing financial and technical support in developing countries (WFP, 2017). The WFP initially started the FFE program in 1961 as humanitarian assistance. Then WFP's mission was to distribute food where needed, to save the lives of victims of war, civil conflict and natural disasters (WFP, 2012).

In general, the FFE is a program using food as a resource to improve educational outcomes; it is designed and implemented as part of

a larger effort to improve educational quality (Alderman *et al.*, 2010). They combine food with other education resources (i.e. materials, supplies, teachers and trainings) to enhance educational outcomes through integrated programming (Bergeron and Rosso, 2001). In Bangladesh, the FFE program began on a small scale in 1993 and expanded to cover 27.0% of the country's primary schools between 1994 and 2000 (CGIAR, 2006). The program has three expectations: (1) to enhance human capital to reduce long-term poverty; (2) to provide nutritional gains to poor families and to improve the targeting of government food subsidy programs; and, (3) to reduce the large leakages from the food grain rationing program.

The FFE started as a large-scale pilot program in 2000 and covered some 17,811 primary schools (27.0% of the total primary schools) of 2.1 million students (13.0% of all the children) in Bangladesh. The FFE covered state primary schools and included four of the eight categories of non-government schools (Meng and Ryan, 2009). Unfortunately, the FFE was terminated in 2002 and replaced by the Primary Education Stipend (PES) program, which provided cash assistance to poor families. Furthermore, the School Feeding Program launched in July 2002 (Ahmed, 2004) and provides a mid-morning snack to students, was (Sukontamarn, 2013). When nutrition of malnourished children improves while they learn, it may also increase their cognitive function. Therefore, the FFE was leading to greater investment in education primarily by subsidizing schooling costs (Adelman *et al.*, 2008). By 2015, the FFE or School Feeding Program initiatives reached 368 million children in 169 countries.

Not only do school feeding programs help ensure that all children who attend school remain healthy, participants were likely to have consistently better enrollment and attendance than non-participants. Breakfast programs at schools lead to better attendance, higher levels of nutrition, increased school attendance, lower dropout rates, and positive effects on academic performance (Korugyendo and Benson, 2011). The FFE is generally considered to be effective at increasing school participation because it initial attendance rates, school quality, and food transfer size (Dorward *et al.*, 2006). The program support includes the direct cost of school enrollment, fees, uniforms, and school supplies (Alderman *et al.*, 2012). The FFE that provides meals served in school and in some cases take-home rations and de-worming programs conditional on school attendance, are considered a useful means to

achieve this aim, particularly in areas where school participation is relatively low (Cheung and Berlin, 2015).

The WFP is the world's largest multi-country provider of in-school meals and take-home rations. It provides a good indication of the typology and popularity of the FFE programs. By 2005, the FFE reached 21.6 million children in 72 countries. In addition to in-school meals and take-home rations, the WFP also provided fortified biscuits for distribution at school teaching (Adelman *et al.*, 2007). For example, the WFP on primary school participation was implemented in Northern Uganda from 2005 to 2007. This program obtained rigorous estimates of the impact of the programs on measures of primary school enrollment, school attendance, age at school entry, grade promotion, and progression to secondary school for a random sample of school-age children living in the service area of the schools (Alderman *et al.*, 2010). In the late 1980s and the early 1990s, the Government of Bangladesh realized the importance of education and identified the development of human capital as a primary strategy for reducing poverty. The program aims to use targeted food transfers to encourage poor families to enroll children in primary school and to keep them there (Meng and Ryan, 2007).

The FFE can also help Uganda fight malnutrition and hunger while broadening access to primary education. Whether these programs involve in-school feeding or take-home rations; they have to improve student school attendance and increase household food security (Korugyendo and Benson, 2011). According to (UNESCO, 2008), Sub-Saharan Africa from 1999 to 2004 raised its average net enrollment ratio by 26.0% for an annual increase six times higher than during the decade before in Dakar.

The increase in South and West Asia was also impressive, rising by 11.0%. However, there is still much work to be done. There are still countries where net enrollment rates of primary school age children are below 60.0%. Children from poor households often do not attend school or face major obstacles in access to good quality education.

3. Methodology and study area

The study applied exploratory and descriptive types to compare between male and female students at two schools where the FFE provided free breakfast under support from the WFP. A survey was conducted to collect quantitative data among children provided meals for education by

the WFP. The two schools selected for surveys were Chi Paing primary school and Veal Malou primary school. They are located in Ponhea Krek District of Tboung Khmum Province. Chi Paing primary school is located in Krek commune and is considered an urban area while Veal Malou primary school is in Veal Malou commune and viewed as a rural area. Both of them used to be supported by the FFE program by the WFP.

There were four female teaching staffs including three teachers and two non-teaching staff at Chi Paing primary school. This school accommodated 362 students with 180 females. Out of the total, 53 and 55 students were studying grade five and six respectively. At Veal Malou primary school; there were seven teaching staff (five females) and four non-teaching staff (one female). The total enrolment was 243 students (136 females); 45 students enrolled 5 and 36 student took grade 6. During field work, students at grade five and six who experienced with the FFE were contacted for the interview. In recruiting the students, the Yamane (1967) formula was used to calculate sample size. Therefore, the findings of this research was generalized the views and insights of the students at Paing primary and Veal Malou primary schools. The formula used to calculate sample size was based on a 6.0% standard error or level of precision. For selecting students, a random sampling design was used to recruit the grade 5 and 6 students (Table 1).

Table 1. Number of children interviewed and key informants

No.	Respondents	Population	Sample Size	Percentage
1	Chi Paing primary school	108	75	69.4
2	Veal Malou primary school	81	30	37.0
3	Principals		2	
4	District Office of Education Youth and Sport (DoEYS)		1	
5	Provincial Office of Education Youth and Sport (PoEYS)		1	
6	NGOs		1	
Total			110	

The field work involved both primary and secondary second sources; they included online and existing publications in relation to FFE program. The secondary data were very useful to back up the quantitative data from the survey. Moreover, key informant interviews were made with educational officers, school principals, and NGO staff. They were asked related to overall situation of the FFE, scholarship support, policy and program as well as suggestions and recommendation to improve food for education program in the study areas. At each school, a group discussion was organized in order to let both parents and children interact regarding their benefits from the FFE program. For the analysis, the research applied various analytical tools: descriptive statistic, Chi-square, *t-test*, and Weight Average Index (WAI). Weighted Average Index (WAI) was used to rate the degree of satisfaction of the students regarding perception towards meals provided under the Food for Education Program. The five-scales were: (1) considerably less; (2) less; (3) moderate; (4) high; (5) very high. Independent-Sample T Test was applied to compare the mean scores of two groups on given variables (gender, for example). Situation analysis was used as a qualitative approach to crucially elaborate the impact of the FFE in Cambodia.

4. Findings

4.1. Enrollment and student performance

In Tboung Khmum province, educational institutions were operating for developing human resources with quality and effectiveness. All kinds of educational services were accessible to be in line with the framework of provincial strategic plan, national strategic plan of the MoEYS, and national development plans of the RGoC. In 2016, the educational support program was provided with equity, quality, and relevance as well as effective leadership and management of educational staffs at all levels. This province employed 4,140 educational staff (1,955 females) broken down into 3,372 teaching staff (1,723 females) and 768 non-teaching staff (232 females). There were 648 schools devised into 23 upper secondary schools, 54 lower secondary schools, 396 primary schools and 176 levels with 4 separated pre-schools. In 2016, there were 163,550 students (80,775 females) broken down into, 9,594 students (4,790 females) at pre-school, 117,806 children (56,975 females) at primary school, 13,013 students (7,013 females) at lower secondary school; and, 23,137 people (11,997 females) at upper secondary school (MoEYS, 2016). Table 2 shows that the education in Ponhea Krek District

significantly improved, for example the total number of schools was now 115 schools or 796 classrooms, 912 staff (including 461 female); and, 29,304 students (14,688 females) were enrolling. There were 37 pre-schools (73 classes, 2,230 students); and, 67 primary schools (571 classroom, 19,857 students). At the secondary school, there were 4 upper secondary schools (4,726 students) and 7 lower secondary schools (2,491 students) (MoEYS, 2016). According to the annual report (2011–2012) made by the Ponhea Krek District Office of Education, there were 16 primary schools in this district received the FFE program. Under the WFP, 3,831 students (1,888 females) benefitted from the program, having been provided with breakfast at school.

Table 2. Enrollment, promotion, repetition and drop-out rate, 2008–2016

Year	Enrollment		Repetition		Drop-out
	Total	Female	Total	Female	
2008–2009	134,946	64,672	12,812	5,669	10.1%
2009–2010	136,415	65,575	10,236	4,307	11.5%
2010–2011	134,102	64,533	7,942	3,302	11.9%
2011–2012	128,810	61,977	6,371	2,735	8.0%
2012–2013	131019	62499	5587	2346	10.4%
2013–2014	126261	60902	5360	2299	5.9%
2014–2015	119771	58202	5451	2210	7.5%
2015–2016	117806	56975	7853	3026	

Source: Provincial Office of Education in Tboung Khmum, 2016

In Cambodian society, Khmer literature, mathematics and science are the most popular topics. In Table 3, the interviewed students provided their views regarding their academic performance; there were four most important subjects: Khmer literature, mathematics, social science and science. More than half of the interviewed students (60.6%) were good at Khmer literature while half of them were bad at mathematics. In terms of gender, female students performed better in Khmer literature but male students were good in mathematics (42.9%). During the interview, the students were asked to list the subjects where they performed poorly and well.

Overall, the students were good at Khmer literature; but, they were bad at math. Both girls and boys were fairly good in Khmer literature; but, boys had better performance in math. According to the Provincial Official of Education, Youth and Sport (2016), math and science were considered as the most difficult subjects for Cambodian students. Some of the students took tutoring classes in order to improve their understanding (pers. comm., December 2016).

Table 3. Subjects with good and bad performance

Subjects	Male		Female		Overall	
	n=49		n=55		n=104	
	N	%	N	%	N	%
Good performance						
Khmer	28	57.1	35	63.6	63	60.6
Mathematics	21	42.9	18	32.7	39	37.5
Science	0	0.0	2	3.6	2	1.9
Poor performance						
Khmer	16	32.7	11	20.0	27	26.0
Mathematics	20	40.8	33	60.0	53	51.0
Social science	6	12.2	8	14.5	14	13.5
Science	7	14.3	3	5.5	10	9.6

Every school day, the parents gave children some money; they mainly spent for snack or/and tutoring a class tutoring. In the study areas, the children received 2,076 Khmer Riels per day from their parents (Table 4). Comparatively, female students received slightly more than male students. In Cambodia, parents believe that boys waste a lot of money for going out so they do not wish to give them much. (School Principal at Chi Paing, pers. comm., November 2016). Out of the total, more than half of their daily stipend was allocated for snack while 25.9% and 19.9% went to extra class and other things (including saving) respectively. Comparatively, boys and girls shared similar patterns of spending on snacks and extra classes; but, girls could save more money than boys. At

school, the students may be required to take an extra class after school because it could help them to be more confident in examinations (School Principal at Chi Paing, pers. comm., December 2016)

Table 4. Daily stipend received by the interviewed students

Indicators	Male		Female		Overall	
	n=49		n=55		n=104	
	N	%	N	%	N	%
<i>Daily stipend</i>						
1000 and below	10	20.4	5	9.1	15	14.4
1001 to 2000	24	49.0	31	56.4	55	52.9
2001 to 3000	11	22.4	16	29.1	27	26.0
3001 and above	4	8.2	3	5.5	7	6.7
Average	2,020.4		2,125.5		2,076.0	
<i>Daily expenditure</i>						
Snack	1153.1	57.1	1098.2	51.7	1124.0	54.1
Extra class	500.0	24.7	572.7	26.9	538.5	25.9
Others	367.4	18.2	454.6	21.4	413.5	19.9

4.2. The implementation of the Food for Education (FFE)

According to the Executive Director of Kampuchean Action for Primary Education (KAPE), many schools were operating the FFE in Ponhea Krek District; students were provided with free breakfast by the WFP. Between 2002 and 2014, the KAPE operated the FFE at around 300 primary schools throughout Kampong Cham and Tboung Khmum provinces. Every morning, the children were ready to go to schools with plates, spoons and bags; they were so excited to have breakfast and play with their peer before the start of class. In addition, the parents were worry free about their children' hunger, malnutrition diets or snack with expired date during schooling (School Principal at Chi Paing primary school, pers. comm., November 2016).

The program was vitally important for the children because they would enjoy the breakfast and wanted to go to school every day. As a result, that program attracted very attention from schools and parents; this campaign drew an enrollment of almost 100% of children. In addition this program helped to reduce child labor, improved students' attendance, reduced drop-outs, and minimized families' expenditure, and increased

students' nutrition, vitamins, and proteins. Moreover, the school principal at Veal Malou primary school suggests that the FFE helped to alleviate poverty and ensure regular schooling of the children. The Head of the Provincial Office of Primary Education emphasizes that this program were very helpful for the poor children to attend class regularly, to feel more comfortable, and to have good class performance. At school under the FFE program, the WFP supplied food such as rice, cooking oil, tinned fish, and iodized salt and the KAPE provided cooking materials and ingredients. At the same time, each school and the communities were supplied vegetables and firewood.

All of the interviewed students received support from school under Food for Education (FFE) program (Table 5). But types of support obtained varied from one to another or between male and female students. At the two schools studied, all of the students received breakfast followed by study materials (54.8%), cash (17.3%), rice (10.6%) and bicycle (1.9%). Comparatively, male students received more cash and rice while female students obtained more rice as a means to encourage them to stay in school.

At Chi Paing primary school, the program started in 2003 and Veal Malu primary school began in 2008. The food was provided to students every morning, Monday through Saturday (School Principal at Veal Malou primary school, pers. comm., November 2016). All the students were given similar food including rice, vegetables, canned fish and cereal. According to the Executive Director of KAPE, some schools arranged the students to grow vegetables and they were used to supply the food nutrition (pers. comm., December 2016). During the field work, all the students agreed on the importance of the FFE and all of them expressed that the program helped them a lot during their study. As their parents could not pay for breakfast; free meals under the FFE program helped to provide children with enough nutrition. When there was breakfast available at school, the students were eager to attend all the class every day (An Executive Director of KAPE, pers. comm., December 2016).

On average, the interviewed students received 2.7 years of breakfast before the phase-out of the projects in 2012. The female students seemed to get it a bit longer than male students. The program was targeting the primary students because they were not comfortable to take class if they didn't have breakfast. In the rural areas, many parents

could not afford breakfast for their children doing their schooling (School Principal at Chi Paing, pers. comm., November 2016).

The Head of Provincial Office of Primary Education in Tboung Khmum province suggested some challenges when carrying out the program. The quality of rice given was not very good quality. Some students did not enjoy breakfast because of food flavor and preference of food by each student. In relation to food management, it was not transparent. The school principal raised some issues of being difficult to recruit a chef and students' dissatisfaction over the meal delivery.

The Executive Director of KAPE also raised concern that the communities did not supply enough firewood, ingredients, and vegetables. Moreover, there were some small cases of loss of rice and tinned fish, and the utensils (i.e., dishes, spoons, and glasses). The Director of KAPA suggests that the program could possibly be renewed if schools and communities worked together to mobilize local resources and national budget. The communities may raise the FFE as a priority in the commune investment plan for annual budget while the schools are also proposing annual budget from the MoEYS. The combined sources of budget will sustain the long-run FFE program. In addition, the schools are working to mobilize additional resources from local NGOs, individual humanitarians.

Table 5. Motivation of students to regular schooling

Attributes	Male		Female		Overall	
	n=49		n=55		n=104	
	N	%	N	%	N	%
<i>Student Motivation for regular schooling</i>						
Yes	49	100.0	55	100.0	104	100.0
<i>Number of years students are in the the FFE</i>						
1	1	2.0	0	0.0	1	1.0
2	14	28.6	14	25.5	28	26.9
3	31	63.3	41	74.5	72	69.2
4	3	6.1	0	0.0	3	2.9
Average	2.7		2.8		2.7	

4.3. Perception of the students towards the FFE

The students were so happy when they could get free breakfast every morning before their classes; they all rated high and very high degree of their satisfaction on all the attributes. The students felt that all the types of food were in very high quality if compared to the available food at home and communities and male and female students shared similar views. During the breakfast serving, the students always said yummy and may I have more food. Most of the students did not want to leave school because they were enjoying the day with food and study. During Sundays or holidays, the students were not happy and they did not have a meal to eat in the morning (School Principal at Chi Paing, pers. comm., December 2016). According to the Executive Director of KAPE, breakfast is important for children because it provides children with needed nutrition. The rural households could not provide their children with the same quality food as that provided by the FFE (pers. comm., December 2016).

Table 6. Perception of the students towards breakfast quality and services

Attributes	Male		Female		Overall		P-Value
	n=49		n=55		n=104		
	WAI	OA	WAI	OA	WAI	OA	
<i>Perception of the students towards breakfast quality</i>							
Rice	0.96	VH	0.97	VH	0.96	VH	0.332
Fish can	0.92	VH	0.98	VH	0.95	VH	0.005**
Vegetable	0.92	VH	0.96	VH	0.94	VH	0.049*
Cereal	0.92	VH	0.96	VH	0.94	VH	0.049*
Clean water	0.75	H	0.69	H	0.72	H	0.114
<i>Perception of the students towards breakfast services</i>							
Timely services	0.93	VH	0.92	VH	0.92	VH	0.649
Similar food amount	0.83	VH	0.81	H	0.82	VH	0.599
Clean and hygienic	0.89	VH	0.89	VH	0.89	VH	0.906

Note: WAI= Weight Average Index measured on a five-point scale [Considerably Less (CL) = 0.00-0.20, Less (L) = 0.21-0.40, Moderate (M) = 0.41-0.60, High (H) = 0.61-0.80, Very High (VH) = 0.81-1.00]; OA = Overall Assessment; *Significance at the 0.05 level; **Significance at the 0.05 level.

The students were very optimistic on the services provided for their meal; they were highly satisfied. The students agreed that food was provided on time and the same amount among all the students. In the same time, the food was very clean and hygienic for them. During the interview, the students felt that the food at school was much better quality than what was cooked by their parents at home (School Principal at Veal Malou primary school, pers. comm., November 2016).

Since 2012, the program has not operated anymore because of the phase-out of the WFP; the two study schools could not continue the program because there was no budget from the MoEYS. As a result, 74.0% of the students agreed that the phase-out of the FFE affected their education. When there was no breakfast provide anymore, the students were reluctant to go to school. In addition, their parents may cook for them or paid them with little money to buy some breakfast. But, the majority of the students did not have properly breakfast anymore because their parents were unable to pay for it regularly (An Executive Director of KAPE, pers. comm., December 2016). When knowing the importance of the FFE, all the interviewed students appealed for the renewal of the program in their rural areas. According to Provincial Official for Education, Youth and Sport (2016), the program came to an end before the schools could run the program by themselves. In particular, the MOEYS has not yet been able to allocate extra budget for the program, while the parents could not afford to pay for the breakfast program (pers. comm., December 2016).

Table 7. The importance and proposed future of the FFE

Attributes	Male n=49		Female n=55		Overall n=104	
	N	%	N	%	N	%
<i>Appeal for a renewal of the FFE</i>						
Yes	49	100.0	55	100.0	104	100.0
<i>Affecting performance of the students</i>						
Yes	36	73.5	41	74.5	77	74.0
<i>Proposed responsible agency for the FFE</i>						
MoEYS	1	2.0	1	1.8	2	1.9
NGOs	48	98.0	54	98.2	102	98.1

The parents of the children still believed that only NGO could make the FFE possible because NGOs have worked closely in the communities. They also provided many types of social services which were not provide by the school and government agencies. According to the School Principal of Chi Paing primary school, primary school could not run breakfast without support from NGO because the school and the community did not have sufficient resources. (pers. comm., November 2016).

Furthermore, the Head of Provincial Office of Primary Education reveals that the FFE could probably renew if the MoEYS and NGOs work together to redesign the program. Moreover, the Executive Director of KAPE suggests that the WFP phased out this FFE because the livelihoods of the parents of the two study schools were getting better and better. In particular, the WFP already asked for a commitment from the central government to continue the program after the FFE's phase-out.

5. Suggestions, planning, and policy implications

The Food for Education is one of the most important programs to improve student performance at primary schools in the rural areas through providing breakfast. Recommendations are provided as the followings:

The Royal Government of Cambodia (RGoC). The breakfast is very important for the children enrolling at primary school; but, their parents are not able to afford it; so the MoEYS may consider continuing this program through providing some annual budget monies to each school for re-operating this program. Alternatively, the MoEYS may work with international organizations and NGOs again, for example the World Food Program (WFP) to provide funding to the schools in rural areas for operating the food for education program (FFE). Without giving daily breakfast, the students are not able to concentrate on their studies and have insufficient nutrition.

The Provincial and District Offices of Education Youth and Sport. The education offices at the sub-national level should consider this program as one of the highest priorities. Therefore, both Provincial and District Offices of Education Youth and Sport should include this program into the annual provincial/district plans to mobilize financial resources from the government and international organizations. The Provincial and

District Offices of Education Youth and Sport also should work with NGOs to seek for funds to support schools which are in need of help in order to provide daily breakfast to the students.

The School Management. Schools currently are not included in the budget from the government to operate breakfast. Schools should consider alternative ways to continue the program. First, schools may consider seeking small monthly contributions from the parents for the program operation. Schools could also grow some vegetable and other edible foods which can supply for breakfast for the students. Since support from international organizations and NGOs are not sustainable; schools may consider more sustainable mechanisms such as annual budget from the government and small monthly contribution from the parents.

The World Food Program (WFP). Obviously, the WFP already completed its mission to provide such support, but the WFP should reconsider if it could select some remote and marginalized rural schools to continue support. It was so early for the WFP to phase out its project and it may have impacts on the program. In order to help the students to sustain at primary school and have sufficient nutrition, the WFP should continue to work with its partners such as NGOs and schools to operate the program again.

The Parents of the Students. The parents should consider breakfast very necessary for their children so they should provide their children with sufficient food for the breakfast by cooking themselves or pay for their children to buy breakfast. The parents could probably wish to pay to school for arranging the breakfast for their children. By doing so, the children also can eat with other peers in which they could build friendlier environment.

6. Conclusion

The Food for Education program (FFE) is very significant for the children at primary schools in the rural areas of Cambodia. The provision of breakfast for the students not only provided the children with sufficient nutrition, it also enabled the children to concentrate on their studies for better performance at school. The research found that (1) the phase-out of the FFE was a tragedy for students at primary level in rural Cambodia because their program helped the students to sustain at schools with good concentration and sufficient nutrition. The majority of students

agreed that the FFE motivated their education. As a result, most of the students appealed for the continuation of this program. The students believe that NGOs could help rural schools continue the program. (2) The students received the same items of food under the food for education program; but they received different types of support such as rice, cash, study materials and bicycles. The students received equal amounts of rice, vegetable, canned fish and cereal for their breakfast. On average, the students obtained 2.7 years of breakfast before the phase-out of the projects by the WFP in 2012. The female students were more likely to be in the program longer than male students. (3) Most of the students satisfied with all types of food provided under the FFE including rice, canned fish, vegetable, cereal and clean water. The food was provided before class timely and daily. The students liked the types of food provided; they assessed that the food was very high quality. Male and female students shared similar views. (4) The annual budget from the government agencies helps to sustain the FFE because that program cannot be sustained permanently by NGOs or other international organizations.

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Ministry of Education Youth and Sport
Education Research Council

Policy Paper

A roadmap for teacher policy development in Cambodia: learning from international experience, application and best practice

Sam Sideth Dy

Deputy Director-General for Education, Ministry of Education Youth and Sport

(Correspondent: dy.samsideth@moeys.gov.kh)

Received: 24 November 2017 Accepted: 27 December 2017

Abstract

This paper aims to consider strategic actions and policies for teachers based on international trends, issues and good practices. It attempts to give recommendations for the development of teachers for Cambodia based on the author's consideration and discussion with experts in education sector in Cambodia and abroad. Cambodia became a member of the International Teacher Task Force (ITTF) in 2015. The membership encourages Cambodia to take serious actions on teacher issues towards enhancing quality of teaching and learning environment. As a result, the Royal Government of Cambodia (RGoC) made a strong attempt to develop teacher policy reform measures in order to upgrade competencies of teachers to improve school-based performance. In this paper, a desk review was used to examine teacher capacity improvement and the skills required to achieve it, by focusing on: good international practices in teacher policies in Asia the Pacific Region and Organization for Economic Cooperation and Development (OECD) countries as well as good practices from the 10 policy dimensions of the World Bank's SABER-Teachers program. The paper is structured around these 10 policy dimensions: the requirements for teachers to enter and remain in teaching; initial teacher preparation; recruitment and employment; teacher workloads and autonomy; professional development; compensation; retirement rules and benefits; monitoring and evaluation of teacher quality; teacher representation and voice; and school leadership. Finally,

the paper provides reflections and recommendations for better teacher policy development and implementation based on the experiences, lessons learned, and best practices of the SABER-Teacher's 10 teacher policy dimensions.

Keywords Teacher policy, Teacher competency, and Teacher Quality Assurance System.

Citation: Dy, S. S. (2017). A roadmap for teacher policy development in Cambodia: learning from international experience and application and good practice. *Cambodia Education Review*, 1(1), 69-94.

1. Introduction

Since the 1980s, Cambodia has made vigorous attempts at effective education reform to restore, reconstruct and develop the country since it was crippled due to the great loss of resources during the civil war in the 1970s (Phin, 2014a). In 1979, the rebirth of education sector in Cambodia represented a historically unique experience from that of any other nation. In the early 1980s, all levels of schooling were re-opened from kindergarten to university. Many teachers were trained and quality gradually enhanced (Dy, 2004). It is a fact that competent teachers do help contribute to student learning and promote the level of education quality (Phin, 2014b). At the same time, it is very important to provide teacher-educators with support in terms of enhancing their qualifications as well as providing them with field experiences (Zein and Haing, 2017).

Cambodia became a member of the International Teacher Task Force (ITTF) in November 2015 after the RGoC adopted its Teacher Policy in May 2013 and the Teacher Policy Action Plan (TPAP) in January 2015. Cambodia's commitment to teacher reforms was recognized by its election to be a member of the Steering Committee and co-chair of Asia and the Pacific Region of the ITTF mandated for two years, 2016 and 2017 (MoEYS, 2016). Based on its commitment, Cambodia was voted by the Steering Committee members to host the ITTF annual meeting and the 9th Policy Dialogue Forum in Siem Reap in December 2016. The Forum brought in over 300 international and national participants from over 100 countries and organizations from all over the world. The TPAP was shared to all participants to demonstrate Cambodia's development experience of teacher reform and its

commitment to improve the quality of teachers and teacher training under the framework of the Sustainable Development Goals number 4C¹ (SDG#4C) (MoEYS, 2016).

The competent teachers need to effectively teach the knowledge and skills that our young people demand in this rapidly changing world. Teacher issues are of huge concern to many education leaders. Schleicher (2012) raises several questions in his recently published book such as, what can teacher preparation and continuing professional development do to prepare graduates to teach well in a 21st century classroom? The question draws our attention to seriously look into many aspects of our education systems: quality of teacher recruiting systems; the type of education recruits obtain before they start working; how they are monitored and what education and support they get; how their compensation is structured; how to improve performance of struggling teachers; and, to enhance development among the best teachers.

Like other countries, Cambodia fully understands that teachers are key to ensuring effective teaching and learning in the classroom. The 2008 World Bank study on teaching in Cambodia observed that the important and pending assignment for Cambodia was the upgrading teacher skills levels, improving teacher performance and raising teacher's pay (Adelman *et al.*, 2007). With growing concern on quality of teachers and a belief that quality teaching brought children into school and kept them there for their desired period of schooling – Hence, Cambodia embarked on the process of making a teacher policy to guide comprehensive teacher management and development towards improvement of its education system and to stay abreast with the rapid changes in Asia's 21st Century as well as Association of Southeast Asian Nations (ASEAN) integration in 2015.

¹SDG#4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. Major progress has been made in access to education, specifically at the primary school level, for both boys and girls. However, access does not always mean quality of education, or completion of primary school. Currently, 103 million youth worldwide still lack basic literacy skills, and more than 60% of those are women. Target 1 of Goal 4 is to ensure that, by 2030, all girls and boys complete free, equitable, and quality primary and secondary education. For detail: <http://www.un.org/sustainabledevelopment/sustainable-development-goals/>.

As the leading institution in this work, the Ministry of Education, Youth and Sport (MoEYS) established an implementation committee for the teacher reform comprising a Steering Committee and a Technical Working Group to guide the development of the policy (MoEYS, 2016). The mission of the Steering Committee is to give general directions and decisions on the implementation milestones and approval of the strategic policy documents.

The Teacher Policy Action Plan was prepared based on the situations of Cambodia applying the guiding principles of the 10 policy dimensions identified by the World Bank's Systems Approach for Better Education Results (SABER)-Teachers program. The SABER-Teacher's 10 teacher policy dimensions are: (1) requirements to enter and remain in teaching; (2) initial teacher preparation; (3) recruitment and employment; (4) teachers' workload and autonomy; (5) professional development; (6) compensation (i.e., salaries and non-salary benefits); (7) retirement rules and benefits; (8); monitoring and evaluation of teacher quality; (9) teacher representation and voice; and (10) school leadership.

Accordingly, this paper aims to draw best practice, experience and application of World Bank's SABER-Teachers program in developed countries for teacher reform planning and policy implementation in Cambodia. The research is based on a desk review of relevant recent publications in the form of books and articles in academic peer-reviewed journals to gain understandings on capacity of teachers, their skills and support required. The review pays particular attention to (a) international good practices in teacher policies in Asia and the Pacific Region as well as OECD countries (i.e., Sweden and Finland); (b) prepares a synthesis of good practices around the World Bank's SABER-Teachers' 10 policy dimensions; and, (c) prepares a set of policy recommendations under each dimension and each policy goal to be considered for drafting Cambodia's teacher policy reform measures.

2. The practice of the World Bank's SABER-Teachers program

2.1. Entering and remaining in teaching

Many education systems in the Asia Pacific Region have faced tremendous challenges in recruiting high-quality graduates as teachers, particularly in disadvantaged areas, and retaining them once they are hired. Only very few countries have succeeded in matching the supply of

high-quality to the demand, sometimes through mutual pledges and effective support systems of motivation and compensation.

High quality schooling depends chiefly on qualified teachers and their performance. Teaching qualifications, however, are administratively defined by relatively objective assessments of skills, abilities and knowledge that are recognized as key elements to enhance quality of teaching (UNESCO, 2005). Teacher preparation and retention of qualified teachers remain huge challenges for many developing countries like Cambodia for various reasons, including lack of professional status and low compensation. Currently, in many countries despite an overall overproduction and oversupply of new teachers, there nevertheless appear to be substantial numbers of students without access to qualified teachers (Ingersoll, 2008).

The quality of teaching is closely associated with the qualification standards required of newly-recruited teachers. Upgrading the qualifications of teachers has a very high positive impact on improving the quality of teaching. Teachers are placed at the front line to deliver effective teaching, provide needed learning support and share knowledge and experience of the world to their respective students and colleagues. A review on educational systems in some selected developed and developing nations has revealed a growing concern about the quality and relevance of education provision to both teachers and students. Required competence (i.e., knowledge, skills, values and attitudes) of teachers in all the schooling systems is given much attention, especially in high-performing countries like Japan, Korea, Singapore, Finland and China. Table 1 compares teacher preparation and qualifications in six countries. Some countries in ASEAN such as Thailand, Malaysia and Vietnam, have applied these successful experiences to their own school's upgrade.

In general, a minimum educational requirement for entering into the teaching force is a high school certificate or baccalaureate plus 1–2 years of pre-service training. Upon the successful completion of the pre-service training, trainees appear to be qualified as pre-school and elementary school teachers. However, these entry requirements have reduced the number of candidates from ethnic minority groups and those who live in socioeconomically deprived areas who get into the system. As a consequence, those who should serve in remote or hard-to-access areas are those who fail to meet the desired qualification standards. Hence, targeted interventions are strongly encouraged to support the teacher candidates from rural, disadvantaged and ethnic minorities.

Obtaining at least an associate degree is quite common in China, Hong Kong and Singapore as a minimum educational qualification to become elementary school teachers. However, the challenge for these countries is how to make teaching jobs at elementary schools attractive to high-performing and professionally motivated associate degree holders.

On the issue of educational requirements, a four-year bachelor's degree is a common standard for joining the teaching force in industrialized countries including the United States, Japan, Korea and Thailand. The growing trend for professional qualifications in these countries is to have more master's degree holders to become high school teachers through effective licensing and testing systems.

Table 1. A comparative study of teacher preparation and qualifications in six nations

	Educational Qualifications			Professional Qualifications			
	High school diploma	Associate degree	Bachelor's degree	Minimum years after secondary education	Subject area/pedagogy	Certification /license	Test/exam
China							
-Elementary	√			0	√	√	√
-L. Secondary		√		2	√	√	√
-U. Secondary			√	4	√	√	√
Japan							
-Elementary			√	4	√	√	√
-Secondary			√	4	√	√	√
Korea							
-Elementary			√	4	√	√	√
-Secondary			√	4	√	√	√
Singapore							
-Elementary		√		2	√	√	
-Secondary			√	4+1	√	√	
Thailand							
-Elementary			√	4+1	√	√	√
-Secondary			√	4+1	√	√	√
United States							
--Elementary			√	4	√	√	√
--Secondary			√	4	√	√	√

Source: (Ingersoll, 2008)

2.2. Initial teacher preparation

Initial teacher training can take a variety of forms. Its duration, curriculum focus, teaching practice and other aspects differ strongly from country to country (UNESCO, 2005). Mounting concern is on teacher preparation programs. What can teacher preparation programs do to prepare graduates who are ready to teach well in a 21st century classroom? Education systems generally struggle with finding answers to this question and there is no agreement across countries regarding which important attributes the 21st century learning environment should provide (Schleicher, 2012).

During this era of rapidly changing societies, of modernization and globalization, teacher preparation programs are needed to prepare graduates who are ready to teach well in the classrooms of the future. In general, teacher preparation programs are designed to equip teachers with what students need to learn. According to OECD (2012) students need to learn from school throughout the schooling system on ways of thinking (i.e., creativity, critical thinking, problem-solving, decision-making), ways of working (i.e., communication and collaboration), tools for working (i.e., information and communications technology and information literacy), and skills for living in the world (i.e., citizenship, life and career, and personal and social responsibility). Which skills teachers themselves need to acquire to effectively teach in 21st century classroom is a complex issue in many countries in the Asia Pacific Region.

Today, when most learners can afford to access content using search engines on the internet, where routine rule-based knowledge is being digitized or outsourced, and where jobs are changing rapidly, teachers need to enable their students to become lifelong learners, to manage non-ruled based complex ways of thinking and complex ways of working that computers cannot take over easily. For example, Singapore and Finland are well-known to have created cultures of high performance in their schools. Their common practices and policies are about preparing their students well to communicate in several languages, identify and solve problems, take personal responsibility for their actions, learn to learn, work with others and use a variety of technological tools (Sclafani, 2008).

2.3. Recruitment and employment

Most teachers are employed in the public sector in either career-based or position-based systems. In career-based systems, teachers enter when they are young and the entry criteria are usually demanding. Teachers are normally allocated to posts according to internal rules and promotion is based on a system of grades attached to the individual rather than to the specific position. Position-based public services select the best candidate for each position, by external recruitment or internal promotion. Entry from other careers is relatively common. Personnel selection and management is often decentralized to schools or local authority offices. Despite major differences between these public service traditions, countries in the Pacific Region share some common policy priorities, for instance, they emphasize teacher quality over teacher quantity and make teacher education more flexible.

Practice in many OECD countries is that schools are provided with more responsibility for teacher personnel recruitment and management. Many countries respond to teacher shortages in the short term in ways that raise concerns about the quality of teaching and learning. They tend to ensure that classrooms have teachers by lowering qualification requirements for entry to the teaching profession and assigning teachers to teach in subject areas in which they are not fully qualified (UNESCO, 2005). Challenges faced by many countries in Asia and the Pacific include how to attract high-performing graduates to join the teaching profession and how to retain effective teachers. Teacher policies tend to address the issues of recruiting competent people into the profession, and providing support and incentives for professional development and on-going high performance.

Countries needing the most new teachers also currently have the least qualified teachers. The Report stresses that policies must address both teacher quantity and quality. Countries like Niger or Cambodia cannot achieve universal primary education simply by hiring more teachers but by training them well and by supporting them in the classroom. Quality teaching brings children into school and keeps them there. UNESCO-UIS (ILO, 2006: p.33).

In Japan, teacher recruitment and employment are made by the prefectural boards of education and teachers are rotated among schools in their respective prefecture usually every seven or eight years. In the case of Singapore, the selection of teachers is made by the Ministry of

Education that first selects new teachers and then sends them for pre-service education at its National Institute of Education. In general, the recruitment of teachers in Singapore is based on the following criteria: (1) strong academic achievement (top 30.0% of age cohort); (2) high overall level of literacy and numeracy (assessment tests); (3) Communication skills (interviews); and (4) Motivation for teaching (interviews and contract teaching). In South Korea, the Ministry of Education is responsible for recruiting national and public-school teachers through concise examination or test stipulated by law. Moreover, superintendents of Metropolitan and Provincial Offices of Education are devolved this authority to employ national and public-school teachers. The method used to hire teachers is through examination consisting of (a) pedagogy and subject matter knowledge; (b) teaching demonstration and (c) an in-depth interview.

2.4. Teachers' workload and autonomy

Teachers want policies that promote professionalism, pedagogical autonomy, provide more help and less control from local and central authorities, as well as opportunities for career development. Countries with decentralized education systems are progressively leaving personnel decisions to the schools and beginning to offer different salaries for different skills. Countries with a more centralized civil service tradition have to align their personnel management policies to teaching competencies needed today (Duthilleul, 2004).

Visible workloads deal with large classes and number of teaching hours. In South Korea, number of students per teacher in 2017 was 30 in middle school, 34.3 in general high school, and 30 in vocational high school. The weekly instructional hours were 20 hours for middle school and 17.7 hours for high school teachers, depending on region and class size. In Thailand, number of students per teacher was 21 for lower and upper secondary school and 31 for upper vocational secondary school. However, a teacher shortage in basic education is a major problem in Thailand. There are more teachers in higher education while there is a shortage in primary and secondary education. The weekly instructional hours are between 22 and 29.5 hours for lower secondary school teachers.

In addition to classroom instruction, teachers take on numerous other duties such as student guidance, participation in school management, document processing, and parental consultation. Teachers

are also responsible for administration, student supervision, attending meetings, training and other activities. According to OECD (2005), the various responsibilities of teachers (Table 2) included the following:

Table 2. Roles and responsibilities of teachers

No.	Indicator
1	<p><i>At the individual student level</i></p> <ul style="list-style-type: none"> • Initiating and managing learning processes • Responding effectively to the learning needs of individual learners • Integrating formative and summative assessment
2	<p><i>At the school level</i></p> <ul style="list-style-type: none"> • Working and planning in teams • Evaluation and systematic improvement planning • ICT use in teaching and administration • Management and shared leadership
3	<p><i>At the classroom level</i></p> <ul style="list-style-type: none"> • Teaching in multi-cultural classrooms • New cross-curricular emphases • Integrating students with special needs
4	<p>At the level of parents and the wider community</p> <ul style="list-style-type: none"> • Providing professional advice to parents • Building community partnerships for learning

2.5. Professional development

Professional development refers to those processes and activities designed to enhance the professional knowledge, skills, and attitudes of educators so that they might in turn improve the learning of students. Major models of professional development include training, observation/assessment, and involvement in a development/improvement process, study groups, inquiry/action research, individually guided activities and mentoring (Guskey, 2000). Global changes together with societal stakeholder pressures, are encouraging or requiring teachers to improve their performance in order to match growing expectations from the communities and parents. In-service education and training for educators and school administrators are key factors influencing the quality of their services.

In Korea, though neither professional development nor in-service training is required for retention in the teaching profession, various in-

service training programs are offered, such as (a) new teacher training; (b) qualification training for promotion (high-level teachers or vice-principals) or specific qualifications (school counselors); and (c) general training for professional development (knowledge and skills). These programs are offered by different institutions: (a) 14 central government institutes; (b) 72 university-affiliated institutes; (c) 16 provincial government institutes; (d) 61 institutes operated by distance education; and (e) about 1,200 private training institutes.

In Finland, further training or professional development of teachers is organized or financed by their employers, usually municipalities that organize the training or send their staff to participate in further education centers. The Finnish Ministry of Education has established an Advisory Board for Professional Development of Education Personnel taking part in various activities of teacher further development from estimating the needs for change, developing responsive programs and assessing and evaluating the effectiveness of the programs. The commitment to furthering capacity of teachers is strong in order to keep Finnish student performance outstanding on the world stage.

In Japan the special characteristics of teacher training are the frequency and variety of in-service teacher training programs organized at different levels. There are five levels of teacher training including (a) the national level which is classified into regular teacher training and ad-hoc training; (b) the prefectural board of education level (training for newly appointed teachers, training for all teachers with 10 or 20 years of experience and training for curriculum coordinators, student guidance coordinators, vice principals and principals, long-term training programs in universities, research centers or private companies); (c) the municipal board of education level (training based on specific education issues); (d) the school level (workshops and seminars); and (e) the voluntary educational associations and groups. It is believed that continuous professional upgrading for educational providers is key to better performance of both teachers and students.

2.6. Compensation (salaries and non-salary benefits)

Decent compensation for high teaching performance is thought to be both intrinsic and extrinsic motivation for teachers and to ensure higher professionalism in society.

In Sweden, the wages or salaries for a teacher in compulsory school and upper secondary for each month are not publicly standardized,

meaning that it is based on individual negotiation. According to the wage brackets for teachers in Sweden, in spring 2009, the salary scale of teachers can be ranked from 1,947 Euro to 3,013 Euro (Niklasson, 2011).

In Singapore, teachers are considered as full-civil-servant employees so they receive full monthly salary including Central Provident Fund Contributions, year-end bonuses, National Institute of Education (NIE) tuition grant, and other benefits and the salary ranges from S\$1,020 to S\$2,060 depending on qualifications, pedagogical training, working experience and gender once they are first recruited as teacher trainees by the Ministry of Education (Tan et al., 2007).

In Thailand, according to Siribanpitak and Boonyananta (2007), the teacher classification framework is based on six levels of academic status: (a) assistant teacher; (b) teacher; (c) experienced teacher; (d) higher experienced teacher; (e) expert teacher; and (f) specialized teacher. The salary scales of the teachers are based on educational qualification and prior experience, and the civil service salary structure. According to the Ministry of Education (2006), the salary scales of teachers range from 8,360 Thai Baht for assistant teachers to 27,450 Thai Baht for specialized teachers. Teachers are given other benefits including: (1) free medical assistance at government hospitals for three generations including teachers' parents, spouse, and children; (2) children's education assistance; and (3) transportation and housing (in some rare cases). The basic level salary for teachers in Thailand with a four-year bachelor's degree is 7,630 Baht (equivalent to US\$190) and for those with a master's degree is 9,320 Baht (US\$233) whereas other professionals such as medical doctors and engineers earn about 30,000-50,000 baht (US\$750-1,250) (Siribanpitak, 2008).

In South Korea, the salary structure for teachers is made up of basic salaries and assorted allowances. The salary scale for teachers, vice-principals, and principals of elementary and secondary schools is based on a single salary schedule (same academic credential and seniority belonging to the same salary step). There are various types of allowances and pensions provided to teachers. For example, benefits to enhance the financial status of teachers include support for the tuition of their children in secondary schools, non-interest loans for the tuition for their children in universities, and loans for living expenses. Additional allowances are given to teachers when they are appointed to posts requiring special responsibilities such as the department head or homeroom teachers. An important indicator used to assess teacher compensation is teacher salary

expressed as a ratio of GPD per capita. Teacher promotion is made based on (a) length of service (45.0%); (b) teacher evaluation by principal and vice principal (40 %); (c) results of in-service training (15 %) and (d) extra credits (those who experience in special school, research schools and remote areas) (Kim, 2007).

2.7. Retirement rules, benefits, representation and voice of teachers

Almost all countries consider public school teachers to be government public servants. Their professional tenure is long-term and permanent with different retirement age and benefits based on the number of years of service. Individual national governments or states determine teachers' retirement benefits. According to the ILO/UNESCO Recommendations Concerning the Status of Teachers (1966), teachers should be protected by social security measures in respect of all contingencies included in the 1952 ILO Social Security Convention, namely for medical care, sickness benefits, unemployment benefits, old-age benefits, employment injury benefits, family benefits, maternity benefits, invalidity and survivors' benefits.

According to Kim (2007), the purpose Korea's national teacher monitoring and evaluation scheme, introduced in 2004 as a pilot study and later on implemented nationwide, is to improve the capacity of teachers in teaching as opposed to providing necessary information for promotion practiced in the old monitoring and evaluation approach. The results of the evaluation are used for making recommendations for better in-service training. The evaluators are principals, vice principals, peer teachers, students and parents. The monitoring and evaluation tools include observation of teaching practices, visiting classes at work and questionnaires containing checklists and open-ended questions.

According to Atagi (2011) teachers in Thailand are evaluated on three standards: (i) ethics and morality of profession; (ii) quality of teaching performance and (iii) academic performance such as research papers. Evaluation and monitoring on teaching performances are important elements to determine promotional opportunities and teacher education reform policies.

The 1966 ILO/UNESCO Recommendations Concerning the Status of Teachers, paragraph 62, emphasizes the rights of teachers and that teachers and their organizations should participate in the development of

new courses, textbooks and teaching aids. Hence, teachers themselves need to be actively involved in policy development and implementation and feel a sense of “ownership” of reform – otherwise it is unlikely that substantial changes will be successfully implemented.

In South Korea, teacher voice is expressed through various representative groups and associations including the Korean Federation of Teachers Association, the Korean Teachers and Education Workers’ Union, and Teacher-Parent Associations.

According to OECD (2007), teachers in Ireland are highly unionized, with 98% of primary teachers and 91% of post-primary teachers belonging to a teacher union. There are three main teacher unions in Ireland namely: (1) The Irish National Teachers Organization (INTO) founded in 1868 represents virtually all primary teachers and principals in the Republic of Ireland as well as some primary and second-level teachers in Northern Ireland; (2) the Association of Secondary Teachers in Ireland (ASTI) founded in 1909 represents second-level teachers in voluntary secondary schools and in some community and comprehensive schools; (3) and the Teachers Union of Ireland represents teachers in Vocational Schools and in some community and comprehensive schools.

2.8. School leadership

According to the Education Act 1999 of Thailand, school principals are expected to perform the following roles: (a) academic administration (curriculum leadership, academic and instructional leadership, critical thinking and problem solving, and innovative leaders); (b) school administration (effective management of services, programs, operations and resources; accountability of budget management and being moral and ethical leaders); (c) staff development (strong interpersonal skills and necessary competencies to develop and manage the program effectively); and (d) strategic planning (establishing school visions and missions by involving participation and contribution of concerned stakeholders and ensuring the success of implementation of school visions-missions).

In Singapore, school leaders take on the following roles and responsibilities: (a) defining school vision/direction; (b) managing instructional program; (c) curriculum leaders; (d) innovation and entrepreneurship of learning environment; (e) staff performance management; and (f) strategic leaders.

Table 3. Recruitment, preparation and development of school leadership

No.	Indicator
1	<p data-bbox="282 276 1158 352">Recruitment of school leaders among Southeast Asian countries is based on the following criteria:</p> <ul data-bbox="282 352 1158 847" style="list-style-type: none"> <li data-bbox="282 352 1158 466">• Seniority or experience - usually vice-principals or assistant principals are promoted to principalship and this practice is very common among countries in the region; <li data-bbox="282 466 1158 618">• Educational qualifications or formal school leadership preparation programs – this is found in <i>Singapore and Malaysia</i> while <i>Brunei and Vietnam</i> have recently introduced school leadership program but not a formal requirement yet; <li data-bbox="282 618 1158 847">• Teaching force or competent teachers – this practice is practiced in Cambodia, Laos, Thailand and Brunei that some school principals are recruited from teaching forces without any administrative experience based on the assumption that competent teachers or effective teachers can be effective or competent school leaders.
2	<p data-bbox="282 847 1158 923">Preparation and development of school leaders practiced among Southeast Asian countries:</p> <ul data-bbox="282 923 1158 1591" style="list-style-type: none"> <li data-bbox="282 923 1158 999">• Pre-service school leadership preparation is not available in Southeast Asia. <li data-bbox="282 999 1158 1399">• Formal in-service school leadership preparation – Formal preparation and development is practiced in Singapore (Leaders in Education Program at National Institute of Education) so that school leaders have to go through a leadership program before holding principalship. Brunei (School Leadership Program at Institute for Leadership Innovation and Advancement), Malaysia (Education Leadership Center and Institute of Principalship Studies); and Vietnam have recently introduced and have spelt out clear strategies to make it a requirement for school leaders nationwide. <li data-bbox="282 1399 1158 1591">• Short-term via workshops/seminars as in-service school leadership preparation – This is common in Cambodia, Laos, Indonesia and Thailand; school leaders are provided short and irregular training with prescribed objectives to effectively respond to some related diagnostic findings.

- 3 Roles and responsibilities of school leaders
 - Thai school leaders take the following roles and responsibilities: (a) management and control (administration, delegation, monitoring and evaluation); (b) leadership and innovation (school vision, community partnership, curriculum leadership and effective communication); (c) human resource development (professional development, collegial support and team building) (Sakulsampaopol, 2010: p. 75)
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3. Policy reflections and recommendations: *implications for teacher development in Cambodia*

The next section provides discussions, reflections and recommendations in terms of the SABER-Teacher's 10 teacher policy dimensions in order to adapt them to Cambodia. They are (1) requirements to enter and remain in teaching; (2) initial teacher preparation; (3) recruitment and employment; (4) teachers' workload and autonomy; (5) professional development; (6) compensation (i.e., salaries and non-salary benefits); (7) retirement rules and benefits; (8); monitoring and evaluation of teacher quality; (9) teacher representation and voice; and (10) school leadership. The recommendations aimed at improving the quality of teaching and learning of teachers and school-performance improvement based on the review. Some of the recommendations have been taken recently in the reform agenda of MoEYS since 2015 under the framework of the TPAP.

3.1. *Entering and remaining in teaching*

- Educational and professional qualifications of the teaching force rely heavily on the quality and relevance of their high school education. Qualifying interested high school diploma or associate degree holders for 1–2 years through subject-area and pedagogic education/training to become kindergarten or elementary school teachers is a common practice in many countries.
- Cambodia is encouraged to consider increasing the educational qualification requirement for entry to the teaching profession. For instance, pre-school and primary school teachers must hold a baccalaureate and lower secondary school teachers must obtain at least associate degrees or equivalent qualifications from a university or teacher training institution. Upper secondary school teachers must

at least hold a bachelor's degree from any university recognized by the government plus one year of pedagogical training including teaching practice in real classrooms.

- To be qualified for the teaching force in secondary education, particularly in mathematics and science, many high-performing countries have adopted a minimum level of bachelor's degree as the educational qualification for entry into pre-service training.
- As Cambodia attempts to comply with related ASEAN policies for human resource development towards improved service and industrial sectors, Cambodia may consider improving both socioeconomic status and professional qualifications of teachers so as to attract high-performing students in science studies to join the teaching force.
- For equitable access of students to become qualified teachers, based on the successful experiences in East-Asian countries, educational requirements to enter the teaching profession as primary school teachers should be a minimum of baccalaureate or associate degree. Owing to Cambodia's growing high school graduate enrollments in Higher Education Institutions and its attempt to keep abreast with ASEAN standards, basic educational requirements for secondary school teachers should be at bachelor's degree or equivalent levels in urban and some rural areas.
- Cambodian staff in teacher-preparation institutions have to be qualified to teach in their own disciplines at a level equivalent to that of higher education. Cambodia may consider professional capacity building and development for teacher trainers in the fields of teaching and research through appropriate direct funding to the institutions to ensure the quality of new teachers.

3.2. Initial teacher preparation

- Teacher preparation programs in Cambodia may need to consider attracting high-performing high school graduates and qualified university graduates. Once they are recruited, induction training and on-going support for their adaptation to a new school environment, especially during their first year on the job, will be required.
- Cambodia's teacher preparation institutions (particularly the RTTCs) should be equivalent to higher education institutions and subjected to assessment of quality by the existing Accreditation Committee of

Cambodia. Certificates issued from the accredited teacher preparation institutions or professional schools for teachers could be teaching licenses.

3.3. Recruitment and employment

- Cambodia could consider delegating significant authority to some provincial/municipal departments (PoE) to recruit pre-school and basic education teachers based on selection criteria and guidelines to be established by the MOEYS.
- Cambodia may consider a requirement that teachers renew their teacher certificates/teaching licenses every 5 to 7 years to demonstrate that they are still meeting professional standards of performance.
- Cambodia may consider ensuring an open, fair and transparent system of teacher evaluation for their promotion involving well-trained and resourced teaching peers, school leaders and external experts.
- Cambodia may consider making a requirement for completion of a probationary period of 1 to 2 years teaching, before full certification or a permanent teaching post is awarded.

3.4. Teachers' workload and autonomy

- Cambodia should consider balancing class sizes and school location in urban and rural areas, in line with compensation for teachers. In several cases in several schools, primary school teachers shoulder class sizes of 70–80 students and some teachers in rural schools face poor classroom conditions with limited support.
- Cambodian teachers should be given more authority to decide on the adjustment of curriculum, the development of extracurricular activities, choices of teaching methods, and internal criteria for student assessment.
- Cambodian school teachers' terms of reference need to be clearly indicated for all the teaching force from the time that they are trained until they become teachers. At the level of parents and communities, Cambodian teachers should be reminded and encouraged to fulfill their roles and responsibilities sufficiently as this will support slow

learners and could help identify students who are at risk of dropping out or those who may want to come back to school.

- Providing professional advice to parents and building community partnerships for learning.

3.5. Professional development

- Professional development for school teachers and administrators in Cambodia should be institutionalized with strong financial support and regulations to ensure that career paths are earned based on competence and performance evaluation by a team of the school support committee. The RTTCs and PTTCs may consider introducing long-term teacher development programs.
- Cambodia may consider using/contracting universities or institutes that are competent to provide short-term or long-term capacity development training for teachers and school principals.
- Cambodia's professional qualification development and training should be linked to promotions and benefits of school teachers and administrators such as incentives and scholarships for special courses.
- Cambodia may consider engaging teachers in school policy formulation, strategic planning and implementation. School environment has to be supportive and conducive to creating opportunities for professional and personal development for teachers.
- Cambodia's teacher policy should consider developing professional learning communities or societies for teachers to share their knowledge and experiences for their mutual professional growth through annual meetings or conferences.

3.6. Compensation

- Balancing teachers' inputs and commitments with compensation in terms of both salary and non-salary benefits should be considered for Cambodia to improve their socio-economic status and to attract highly competent graduates to join the teaching force.
- Introducing career paths for teachers and academic rankings should be considered along with enhanced good governance and transparency at all levels.

- Cambodian teachers' salary scale and structure should be based on educational and professional qualifications, school-based performance, competitive awards, research publications, seniority and other credible relevant professional development.
- Other benefits for qualified teachers that Cambodia may consider are to provide shared medical insurance packages for three generations including teachers' parents, spouse, and children. This special social security benefit will encourage teachers to perform better and become more committed to their teaching and support disadvantaged learners and school improvement activities.

3.7. Retirement rules and benefits

- Cambodia's teachers should be required to undergo periodical medical examinations, which should be provided free.
- Old-age benefits should be related to final earnings so that the teacher may continue to maintain an adequate living standard.

3.8. Monitoring and evaluation of teacher quality

- A Cambodian national teacher evaluation mechanism could be developed and strengthened to make sure that teachers are doing their job effectively and responding well to their roles and responsibilities as prescribed in their terms of reference.
- Teachers could do self-assessments against their codes of conduct, terms of reference, annual work plans and then report to the school leaders for their advice or guidance, and these could be encouraged by Cambodian education authorities and MoEYS.
- The purpose of evaluation should be clear, whether evaluation is for promotion or further professional development.

3.9. Teacher representation and voice

- Consider enhancing the effectiveness of Cambodian teacher representation in policy dialogues and their related training program designs to help improve education systems as a whole.
- Cambodian teachers could be given freedom to create or take part in any professional/academic associations/societies or unions in relevant fields/expertise (complying with the existing government laws and regulations) so that they can express their voice and make greater

contribution to national development and effective education systemic reform.

- MoEYS could consider supporting or facilitating an annual teacher forum (or world teacher's day) so that teachers can participate and share their views on issues related to them.

3.10. School leadership

- Cambodia may consider having minimum criteria and requirement guidelines (experience, potential, and educational and professional qualifications) to become school leaders and the guidelines should be made accessible to all teachers for their promotional planning.
- Cambodia should consider developing formal long-term school leadership training programs for identified principal candidates to focus on institutional management, instructional leadership, coordination and facilitation roles in schools and outside schools. Roles and responsibilities of school leaders need to be clearly identified in line with the Teacher Professional Standards.
- MoEYS should encourage establishment of a School Leader Association to connect school leaders in a professional network and promote inclusive professional growth.

With regards to the above discussion on the 10 policy dimensions: trends, issues, reflections and recommendations, this paper suggests Cambodia's policy makers could consider framing its teacher policy goals in line with SABER - Teacher's Eight Core Teacher Policy Goals (See diagram).

4. SABER - teacher's eight core teacher policy goals

4.1 Setting clear expectations for teachers

- Reiterate that a teaching job is professional and well respected in society as a long-term state employee and highly valued by local communities and the government.
- Clear set of opportunities for promotion through both management and academic paths.
- Decent and honorable living conditions and as second parent to school children.



1. Setting clear expectations for teachers
2. Attracting the best into teaching
3. Preparing teachers with useful training and experience
4. Matching teachers' skills with students' needs
5. Leading teachers with strong principals
6. Monitoring teaching and learning
7. Supporting teachers to improve instruction
8. Motivating teachers to perform

Figure 1: SABER-Teachers 8 Teacher Policy Goals

Source: <http://web.worldbank.org/>

4.2. Attracting the best into teaching

- Encourage high-performing graduates to enter the teaching profession as a profound contribution to the quality of human resources for the country.
- Reasonable compensation for outstanding performance and a transparent promotion system
- High-performing graduates receive special consideration while under training and selection of prospective work place (or school location).
- Making known to all that teaching is a proud job and the right choice to help the nation produce human capital for sustainable development.

4.3. Preparing teachers with useful training and experience

- Friendly and supportive environment at teacher preparation institutions (NIE, RTTC and PTTC) could be enhanced and responsive to the basic needs of the teacher trainees.
- Teamwork during their training and practicum with warm support and encouragement from the trainers and leaders of the teacher preparation institutions.
- Linking theory and practice during training and extending the practicum period to enable teacher trainees to learn how to help slow learners and to make direct contact with parents or communities to prevent dropout.
- Inviting experts from neighborhood schools, universities and other institutions as guest speakers for both trainers and trainees to get exposure to external intellectual knowledge and perspectives of professional work and changing trends in education.

4.4. Matching teachers' skills with students' needs

- Enhance understanding of flexible teaching methods, classroom managements and interactions with students.
- Output-outcome based teaching – a focus on what students gain from teaching after class.
- Assign teachers to teach the subjects in their specializations or strong interests so that the intrinsic motivation and confidence of teachers would enhance the quality of their teaching.

4.5. Leading teachers with strong principals

- Principals should be model high-level teachers with knowledge, skills and competence in management and leadership – selection of school principals should be based on competence and proven effective strategies for school improvement, regardless of sex, age, socioeconomic status or ethnic background.
- Teachers should have the authority to make final decisions about principal candidates to be appointed or endorsed by the PoE and MoEYS.

- Principals should have task-oriented, relation-oriented and change-oriented attitudes to enhance their skills in school strategic planning and improvement.
- Principals should be granted special status and privilege to ensure their leadership in making school operational and strategic plans for each school year.
- School self-evaluation guidelines should be followed by principals and the results of the evaluations against the school strategic and operational plans reported to all school stakeholders, including teachers and students, to raise the school profile and prepare for upcoming school years.

4.6. Monitoring teaching and learning

- Self-evaluations of teachers' performance should be encouraged for all. Their performance should be checked by end of the school year against their strategic planning for their teaching classes. Annual plans for each class will help teachers to identify strengths and weaknesses of their students and teachers themselves so that they can identify needs for professional support or training opportunities.
- Peer monitoring support and evaluation among same-subject areas should be encouraged at all school levels.
- Effective management will enhance a sense of professionalism among teachers and principals to avoid absenteeism of teachers and students and to ensure compensation for lost teaching hours.

4.7. Supporting teachers to improve instruction

- Professional training through an in-service training system.
- Peer observation and support mechanism in both classroom teaching, laboratory work and lesson planning.
- Learning and research materials and opportunities are made freely available for all teachers.

4.8. Motivating teachers to perform

- Enabling program for best teacher of the year at school level, at DoE level, at PoE level and at MoEYS level – the criteria of selection to be developed and enforced by MoEYS

- Create working space at school during non-teaching hours for teachers' lesson planning and consultation with students.
- Introduce merit-based promotion and pay system, and make it known to all teachers so that they can prepare for their participation and involvement in school-related development activities.
- Create enabling environment for teachers to discuss their issues relative to classroom management, curriculum, teaching and learning, etc.

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Ministry of Education Youth and Sport
Education Research Council

Book Review

Book Review: Cambodia education 2015: Employment and Empowerment

Korop Phat

The English Language Support Unit, Royal University of Phnom Penh
Correspondent: khat.korop@hotmail.com

Received 30 November 2017; Accepted 28 December 2017

Citation: Phat, K. (2017). Book Review: Khieng Sothy, Srinivasa Madhur, and Chhem Rethy. Cambodia education 2015: employment and empowerment (eds). In *Cambodia Education Review*, 1(1), 95-99.

There is little literature on Cambodian education, particularly in English edition. An edited book entitled, “Cambodia education 2015: Employment and employment” contributes to this area by specifically identifying the shortcomings of education in this developing country and offering recommendations in overcoming them. The book consists of eight chapters, covering five main Cambodian educational systems. These are: higher education, technical and vocational education training (TVET), secondary education, primary education, and preschool and childhood development. In Chapter One, the authors offer justification on why the Cambodian education is the focal point of this book, which is to empower and involve their citizens in the development of the country by reforming the existing education system. The chapter also offers an overall aim and specific objectives of the book, which mainly focus on policy issues and gaps of educational systems in Cambodia. Additionally, the research methodology employed and the limitations of the book are also revealed in Chapter One.

Chapter Two, in particular, discusses curriculum issues in higher education, which highlight skill gaps between the skills provided by the higher education institutions (HEIs) and those needed by the industries (Tran, 2014). The emerging skill gaps, reported in the chapter, include a lack of both technical (hard) skills and soft skills, although the discussion of the inadequacy of the soft skills is more in-depth than that of the technical skills. On one hand, for the technical skills of low-to-medium skill intensive jobs, a major concern reported from various industries and businesses (e.g., manufacturing, services, and construction sectors) involves job-related and job-specific skills. On the other hand, the soft skills required and reported by the industries, which have been absent in the educational curriculum, include problem solving skills, organizational management skills, and foreign language proficiency (Clayton, 2008; Clayton, 1995, 1998, 2000, 2002, 2006). The chapter also provides specific examples of skill shortages in a particular industry sector, which is tourism. Finally, several impacts, specifically the impact on the economy resulting from the skill gaps, are discussed in both the local and international contexts, and recommendations are also given in Chapter Two. Policy makers, especially those involved in higher education reform, can adapt the suggested measures such as integration into the curriculum the development of cognitive skills (e.g., communication, basic computer literacy, and problem solving) and technical knowledge (e.g., specific-job related skills) through a so-called internship program.

One main focus of the book being reviewed here is a discussion of issues in the higher education system, which is illustrated in Chapter Three. In discussing the issues and offering recommendations for policymakers and educational leaders, the authors divide the chapter into four subchapters. Subchapter 3.1 covers trends, issues and policy options in the context of higher education. The authors blame most of the existing education policy documents (e.g., 2007 Law on Education, National Strategic Development Plan 2014–2018, and Education Strategic Plan) for not prioritizing and not giving enough attention on higher education, although they seem to support the Ministry of Education, Youth and Sport on its two recent mechanisms (e.g., Higher Education Vision 2030, National Qualifications Framework) providing guidelines on higher education. In addition, several issues such as access and equity to higher education, quality and relevance of higher education, financing higher education, governance in higher education are still big challenges for higher education institutions, especially the private ones in dealing with the balance between enrolment rates and quality graduates,

since most of them depend entirely on student tuition fees for their revenues. However, to help the government to achieve the ambitions in becoming an upper-middle-income country by 2030 and a developed country by 2050, quality assurance plays a crucial role in improving the quality of higher education. Moreover, to survive in a fast growing and competitive world of higher education, it is suggested that Cambodian HEIs transform themselves to be entrepreneurial universities, which is perhaps a new concept for many HEIs in Cambodia. The university entrepreneurship helps narrow skill mismatches through university-government-industry collaborations, and government policy intervention and financial support to HEIs. Another proposed initiative is a national campaign in higher education to promote the implementation of Open Online Course Platforms through the usage of mobile device (m-learning), which is claimed to contribute to an achievement of the Education Strategic Plan 2014–18. The Open Online Course Platforms might be a big challenge for old generation teaching staff; however, the Ministry of Education, Youth and Sport might consider this initiative for their next agenda on policy planning.

Chapter Four addresses skill gaps in TVET and offers recommendations for policy makers. The authors review the existing government policies and programs relating to TVET, including the Rectangular Strategy Phase III, the National TVET Development Plan 2008 and Strategic Planning on TVET Development 2014–2018. Although TVET significantly contributes to the industries, findings from key informant interviews, including representatives from government ministries and departments, development partners, education institutions, private sector and non-governmental organizations, as well as students and parents revealed the lack of soft skills and technical skills among graduates in the labor market. Other constraints for TVET institutions is being less popular and lower status compared to HEIs, thus attract fewer students. To increase the number of Cambodian skilled laborers, the low status issue of TVET is an urgent issue, which should be considered.

In Chapters Five, Six and Seven, secondary education, primary education, and preschool and early childhood development are discussed respectively. First, Chapter Five illustrates barriers to student achievement in secondary education and ways forward to obtaining high-quality secondary education. To positively affect secondary education, the authors suggest school reform and leadership. To reform the school system, some issues, which are suggested to be solved include student

learning outcomes, teacher behavior and professionalism, school principal, student enrolment and dropout rates, curriculum, student-teacher ratios, and teacher qualifications and salary. Similar to Chapter Five, Chapter Six describes several aspects of primary education, such as enrolment, dropout, completion and repetition rates, hardware (buildings), access and affordability, and software (curriculum, teachers and teaching), governance, school leadership and management, and financing. The Ministry of Education, Youth and Sports might need to solve some of these continuing issues, particularly decreasing the dropout rates in order to achieve its goal of having all students complete at least grade 9.

In Chapter Seven, the authors discuss the benefits of preschool and early childhood, which include moral incentive, citizenship incentive, economic incentive, and equality and inclusivity incentive. This educational sector, compared to other sectors, seems to be given the least attention from the government, thus this leaves a gap for private sectors namely international schools to be mushrooming, especially in the urban areas. To increase the access for children elsewhere and countrywide, the government might want to improve and upgrade this sector as well.

There are a few issues in this book, which could have been improved. One downside of the book is that the authors cover the entire Cambodian education system, which makes the issues discussed in the book less comprehensive, critical analysis and lack of depth. For example, employment is mainly discussed in higher education and TVET, but it is absent in secondary education, primary education, and pre-schooling. Second, the book consists of some unnecessary information and descriptions. For instance, rather than describing irrelevant and too general background, the introduction should directly state what the entire chapter covers. There is also a lack of critical analysis on a few sections, which makes the text less academic and research based, as claimed by the authors. Since the book is an edited book, there should be at least one author responsible for each chapter; otherwise the term on the cover 'edited by' should be deleted, so that the editors become authors. Perhaps for the next edition of the book, the text should be more carefully proofread and edited by professional academic editors prior to publication.

However, the book significantly contributes to the existing literature in education, especially to research in Cambodian education, namely higher education, TVET, secondary education, primary education, and pre-

schooling and early childhood development, which is immature and insufficiently investigated and published. Thus, the book is resourceful for researchers who are interested in exploring Cambodian education; especially the book identifies the loophole and weaknesses of the entire system. In addition, this book offers justified arguments and recommendations, including identification of the lack of policy guidelines and mechanism as well as initiatives for policy makers and development partners in the context of a developing country in general, and in Cambodia in particular.

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Ministry of Education Youth and Sport
Education Research Council

Book Review

Book Review: The political economy of schooling in Cambodia: issues of quality and equity

Phirom Leng

Research Fellow, Cambodia Resource Development Institute (CDRI)
Correspondent: phiromleng99@gmail.com

Received 10 November 2017; Accepted 30 November 2017

Citation: Leng, P. (2017). Book Review: Yuto Kitamura, D. Brent Edwards Jr., Chhinh Sitha, and James H. Williams (eds): The Political Economy of Schooling in Cambodia: Issues of Quality and Equity, In *Cambodia Education Review*, 1(1), 101-110.

Literature on contemporary Cambodian education is relatively modest, focusing on specific aspects in a silo manner at different levels of education, rather than attempting to address the education system as a whole (Eng and Szmodis, 2016; Leng, 2016; No *et al.*, 2012; Sen and Ros, 2013). For example Khieng *et al.*(2015) limit their discussions mainly to the economic aspect of education, when attempting to address the whole education system. This is not to mention the paucity of in-depth studies on each subsector, be they general, technical or higher education. The lack of systemic analysis has exacerbated the already fragmented policymaking process in Cambodia, which has been influenced and shaped, mostly in a piecemeal way, by various local and international aid agencies and their agenda. Scholarly and policy fragmentation has been compounded by emerging problems as the education system has grown and expanded. This has raised concerns among education policymakers, academics, researchers and

professionals, not least because education has taken an increasingly important role in supporting Cambodia's socioeconomic development. The government's vision is for Cambodia to have achieved upper-middle-income status by 2030 and developed country status by 2050. To contribute to the betterment of Cambodian education as well as to fill the literature gap, *The Political Economy of Schooling in Cambodia* sets out to present the critical and contemporary issues facing education today. Part of the International and Development Education Series, this volume was edited by Yuto Kitamura, D. Brent Edwards Jr., Chhinh Sitha and James H. Williams.

Composed of six parts with 12 chapters, the introductory chapter by the editors sets the scene, placing the development of Cambodian education within the country's broader historical and political contexts since its independence from France in 1953. This chapter neatly concludes with a roadmap for each chapter. Chapter 2 explains the historical context of the civil conflicts in the 1970s and 1980s, with their destructive legacy still apparent today. Against this backdrop, an overview of the contemporary formal schooling system in Cambodia is presented, from preschool programs to higher education. With quantitative expansion at all levels come various issues, which are addressed in the subsequent chapters. Important to note in this chapter are the five five-year Education Strategic Plans (ESPs) which the government has adopted since 2001 as its key policy for the entire sector: (1) 2001–2005, (2) 2004–2008, (3) 2006–2010, (4) 2009–2013 and (5) 2014–2018. A five-year Education Sector Support Program designed to provide detailed action plans guided the implementation of each ESP. Successive ESPs were revised based on assessment of the achievement targets. Although basic education has been the main priority throughout, ESP 2014–2018 also prioritizes early childhood and postsecondary education. Plus, while previous ESPs have focused on inputs (textbooks, school buildings, qualified teachers, and so on), the current ESP emphasizes results and outcomes (p. 31), signaling the government's intention to shift focus from quantitative expansion to quality and efficiency.

Chapter 3 moves on to focus on the role civil society, particularly the NGO Education Partnership (NEP), has played in national policy making. Established in 2002, the NEP has come to represent all education-related NGOs in Cambodia in their interactions with the Ministry of Education Youth and Sport, which has welcomed a collective

voice from a single organization rather than dealing directly with many education NGOs. Adopting Margaret Archer's morphogenetic approach to social change as an analytical framework, Edwards and Brehm show how the NEP, despite its recent foray into policy influence, has succeeded in shaping policy making in Cambodian education, moving from the margin into the mainstream, recognized and valued by local and international partners. That said, the authors also suggested that, "As NEP navigates the politics of policy making going forward, it may find itself agreeing with MoEYS more often than challenging it" (p. 51) – a dynamic that could to a certain extent maintain and legitimize the government's power.

Based on ethnographic data, Chapter 4 highlights the tension between global policies and local practices – a contested and complex theme in the field of comparative and international education. Particularly, it examines how the concept of new effective teaching methods, rooted in the Anglo-American participatory practice of open debate and discussion, has been constrained by the Cambodian traditional view of what counts as knowledge and how knowledge is transferred. Cambodia's inherently hierarchical social order, along with the common Buddhist practice of chanting, has asserted the role of the teacher as the main repository of knowledge. Pedagogically, knowledge has been transmitted mainly verbally, with the teacher-centered approach remaining dominant across the country – a practice considered to hinder students and teachers from seeking new knowledge or ideas or, simply put, from thinking freely, creatively and differently. It follows, then, that any new policy or concept, for instance, more modern innovative teaching methods, would be seen as adversarial and consequently must overcome huge challenges. Thus in the conclusion the author points out that, "it is necessary to tackle the political, cultural, and social structures that sustain the logic of *paccekeeh* [technique] if MoEYS seriously wishes to bring substantial changes in teaching and learning" (p. 73).

Chapter 5 discusses the gap between policy interventions and policy implementation, with a focus on equity and diversity in education. In their in-depth analysis of the inclusiveness of the country's education policies, in particular for children from disadvantaged families, the authors consider five key variables: gender, disability, poverty, ethnicity and urban-rural location. Cambodia has ratified many international conventions to promote inclusive education and diversity. These include, but are not limited to, the Convention on the Rights of the Child, the

Convention on the Elimination of All Forms of Racial Discrimination, and the Convention on the Rights of Persons with Disabilities. The country's Education Law establishes that every Cambodian citizen has the right to access at least nine years of free and compulsory education in public schools. As the study reveals, many factors have hindered the successful implementation of the stated policies, though two stand out. One is the nature of policy intentions, which have not been inclusive enough, instead emphasizing equity in access over equity in inputs, outputs and outcomes. The other is the lack of resources constraining the government's ability to give full attention to such an emerging issue as inclusive education for all.

Chapter 6 describes shadow education in Cambodia as a complex form of educational corruption, resulting from interplay between individual agency (individual behaviors) and structure (socially determined outcomes of the system). Private tutoring has become a particularly pressing issue in Cambodia, with families covering up to 80.0% of structural educational expenses and the government only 20.0%. Structural deficiencies, including low government expenditure, high teacher-student ratio and shortage of teachers, have resulted in high household educational expenditure. Teachers, intentionally or not, have to offer private tutoring to supplement their income. And students and parents, regardless of family socioeconomic status, feel the pressure to pay for these extra classes. This has created a vicious circle of poor quality public education, high household expenditure and corrupt practice. As the author suggests, correcting the problem first demands public acceptance that private tutoring, one form of corruption, is not a closed system, but engages many stakeholders who all bear responsibility and must therefore work together to restore balance and depth to the education system.

Chapters 7 and 8 center on chronic school dropout. Focusing on sixth graders as the main research participants, the former found that "student achievement in school and the expectations and aspirations of significant others in parents' social networks play an important role in explaining parents' educational expectations for their children, and that parents' education expectations help explain student retention" (p. 135). Chapter 8 uses complexity theory to understand student dropout and retention in Cambodia at the lower secondary level (grades 7-9), where dropout rates are highest. Two prominent factors affecting student dropout are lack of family-school connections and lack of teacher

outreach to families and the community. Overall, the high dropout rate remains a major concern as Cambodia broadens and deepens its engagement in regional and international communities. While almost every Cambodian child now has access to primary education, the gross enrollment rate in higher education in 2016 was only around 12% of the college-aged cohort.

Part 5 extends the scope of the book by touching upon higher education. Chapter 9 looks at the growth and expansion of Cambodian higher education over the past 30 years, within the context of limited financial and human resources and lack of guiding policy. It is widely known that, as in other countries, many international aid agencies put more emphasis on supporting basic education in the belief that returns to primary and secondary education are higher than returns to higher education, which has been seen more as a private good. To accommodate the growing demand for higher education as the country embraced the free market economy and multi-party politics, privatization reforms were introduced in the mid-1990s, allowing public HEIs to offer fee-paying programs and private providers to set up HEIs. This marked the beginning of the massification of higher education in Cambodia. A wide range of issues are discussed, from access and gender equity to the quality of teaching and programs and to research. Policy wise, the government has emphasized in ESP 2014–2018 the improvement of education quality across levels, including higher education. The authors also provide a comparative analysis of higher education development in the Asia-Pacific region.

Drawing on a survey of teacher trainees, Chapter 10 delves into the teacher preparation system to see if it has promoted access, equity and the development of a Cambodian guild of teaching – a low-paid profession in Cambodia. One notable finding is the strong association between socioeconomic background and career aspirations: low socioeconomic status trainees want to teach for the rest of their lives, and high socioeconomic status trainees only want to teach for a few years before moving on to other professions. The chapter reveals how persistent underdevelopment of the teacher training system in Cambodia has reinforced the cycle of poor quality teaching and learning, with far-reaching implications for the whole system. These include the need to make teacher training programs more practical for trainees, improve teacher working conditions, create clear opportunities for academic

career advancement, and restructure teacher compensation for those with greater experience, training or teaching skills.

Chapter 11 focuses on the quality of teaching and research in Cambodian higher education. Among the key findings, engineering and agriculture faculty members expressed a relatively low degree of job satisfaction, due to lack of improvement in education quality and limited access to international journals. Overall, given time and resource constraints, research capacity remains largely underdeveloped, with many faculty members spending most of their time teaching. This is an unintended consequence of the neoliberal agenda where reduced government investment in higher education has been partly offset by allowing HEIs to run their own management and financial operations. Thus, in its efforts to create an environment conducive to research, it is important that the government accelerates higher education reforms to ensure that faculty members receive sufficient financial supports and incentives. Chapter 12 concludes by discussing access and quality in education, professional learning and support for teachers, and best practices in educational management.

The edited volume is outstanding in many aspects. First, it covers various contemporary issues from general education to the tertiary level, ranging from policy development to teaching and learning practices in the classroom. The editors deserve credit for skillfully putting these themes into one volume. This overview allows readers to build a holistic understanding of the current context of Cambodian education. Such a focus on the whole system reveals the lack of coherence and coordination within and between each subsector and reminds policymakers in particular of the dire need for a national master plan to move the education sector forward. As the book reveals, many actors are involved in the educational development of Cambodia, some working together and others independently with little collaboration, creating policy fragmentation, the impact of which will persist over generations.

Second, all chapters are methodologically sound and, except for Chapter 9, grounded in empirical data from primary sources including surveys, interviews and observations. This evidence-based research provides scholars, practitioners and policymakers with up-to-date information and a rich seam of insight into Cambodia's education system. Many chapters are also theoretically grounded, drawing on different scholarly works in the analysis of educational issues in Cambodia. Policy, theoretical or practical recommendations are offered

at the end of each chapter toward addressing contemporary issues in education.

Third, contextual analysis is a key characteristic of this volume. Any valid and meaningful understanding of the development of contemporary Cambodian education and implanting of new concepts or policies cannot be separated from the local sociocultural and historical context – an argument well supported in the field of comparative and international education (Crossley and Watson, 2003; Hayhoe, 2001; Steiner-Khamsi, 2012). The successful experience of the NGO Education Partnership exemplifies how a foreign actor needs to recognize local agency and navigate local context in its efforts to promote new ideas or reforms. This reflects the epistemological assumption that power relationships are not a static, but rather a socially constructed, notion, emerging from the interplay between local and global agencies.

Another challenge for the adoption of new teaching and pedagogical approaches is explained in Chapter 4 by Ogisu, who looks at the contested and complex nature of educational policy borrowing: the epistemology and ontology of education in Cambodia. As the chapter reveals, traditional teacher-centered methods are still dominant in Cambodian education, largely shaped by inherently hierarchical power relationships. New foreign educational policies and practices need to be adjusted in order to have a palpable influence on such social norms. This ethnographic study makes a valuable contribution to the recent trend that challenges the global isomorphic influence of the world culture theorists who argue that, “the push of Western ideals of schooling has led not only to increasingly similar school systems around the globe but to increasingly analogous classroom-level pedagogies” (Straubhaar, 2014, p. 217). As a scholar in this field, I cannot resist saying that this is one of the few chapters to create space for critical reflection, paving the way for looking at the foundation of Cambodian epistemology. One of the stark reminders of this book is that as an educational researcher or policymaker, one should not privilege some theoretical approaches or positions over others. There are multiple ways of knowing in this contemporary world, all equally important. The student-centered approach in Cambodia has to be adapted and adjusted to ensure its relevance to the Cambodian context – a process which demands inclusive and frank engagement of all stakeholders, including local teachers and parents.

Despite the book's solid points, it would be remiss not to also point out a number of shortcomings. First, a list of abbreviations would be both courteous and helpful. Although context is important, it starts to become somewhat redundant when, for instance, yet another chapter elaborates the legacy of the Khmer Rouge regime. The later chapters could simply refer to similar information presented earlier.

In stark contrast, the book appears intellectually remiss with respect to localized scholarship. It is disappointing to find contributions from only three Cambodian scholars, none of whom take lead authorship. Almost all the international scholars authored more than one chapter, with several of them covering five or six. A lack of local empowerment in scholarship may well have contributed to this gap. But it also raises the critical question of "whose knowledge matters". There are many competent local scholars who are well trained and capable of making equally important contributions on many themes to this volume as their international counterparts. Hence, I would be glad to see a better balance of local and international scholars in such an edited volume in the future.

Although the book has addressed all objectives as stated on pages 6–7, it seems to lack breadth. True enough, an edited volume of this kind cannot cover everything, yet it raised some important ideas that merit careful consideration. In the editors' words, "schooling in Cambodia from the primary to higher education levels is failing to provide learners with the knowledge, skills, and attitudes that upper-middle-income countries demand" (p. 4). This statement glosses over some aspects that are essential for ensuring the relevance of education to students' mental well-being, their future employability and Cambodia's immediate needs. One of the themes that should be discussed is internationalization of education within the context of Cambodia's increased engagement in the regional and international communities: What are the important skills that Cambodian students should be equipped with? And what are the roles of the government, schools and higher education institutions in the internationalization process? Another important theme is science, technology, engineering and mathematics education at K–12 and higher education levels, given government emphasis on moving Cambodia from low-skilled labor-intensive industry to high-skilled value-added industry by 2025. The rise of private schools in Cambodia, with different models from different countries, should also be examined. Future research could explore these new issues and would complement this volume.

Brehm's reflection indicates the hard truth about educational corruption in Cambodia. While everyone seems to agree that corruption is commonplace, addressing such a sensitive issue in research is a great challenge, demanding deep engagement of the researcher in the community. Hence, there should be a section on how the author dealt with research ethics, particularly concerning the core purpose of the study, and potential implications of his role as an outsider. Did he mention the topic of "corruption" to the participants? And before the article was published, did he ask the participants to fact-check the study and if they agreed with his analysis? Participants and the author might see this issue differently.

All in all, the book's strong theoretical and methodological substance transcends its shortcomings. It makes a significant contribution to the modest literature on Cambodian education as well as to the field of comparative and international education. It is appropriate for a wide readership, including policymakers, scholars, and those interested in education in Cambodia as well as in the developing world.

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