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Cambodia Education Review

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Ministry of Education, Youth and Sport
Education Research Council

Editorial

Why is School-based Management (SBM) in Cambodia?

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School-based management (SBM) has been discursively permeated in policies in many countries around the globe as a concretized form of decentralization and an instrument for ensuring education quality since the 1980s. Decentralization in this case is the process of transferring authority or decision-making from the central level of the government to the local government (council) or line of bureaucracy (e.g., school). In educational decentralization, the school has transferred or devolved certain authorities and responsibilities to make decisions on significant matters related to the school operation in line with the nation's policies and frameworks on curriculum and instruction, standards and assessment, transparency, and accountability (Caldwell, 2005, p. 13).

SBM has been implemented in many developed and developing countries in many forms. Some countries have set out SBM in national policies and laws and impose the implementation of SBM across the entire nation. Some countries have still incrementally and cautiously

implemented SBM through piloting projects in some targeted schools. Although the concept underlining SBM is the managerial/structural reform of neoliberal policies, SBM takes many forms based on national, social, political and cultural contexts. The form of SBM generally differs in terms of the levels of responsibility and authority and to whom the authority is devolved. The devolution of authority may cover several or all elements of school operation, such as allocating the school budget, hiring and firing school directors and teachers, setting the curriculum, selecting textbooks and instructional materials, and improving the facility's infrastructure. Some SBM programs entail the devolution of a few insignificant authorities that have minimal impact on the student learning outcomes and significant policies.

There are many anecdotes and research findings on the effect of SBM on the education system (Blank, 2004; Caldwell, 2005; Conley, 1993). The proponents of SBM assert that SBM increases participation in decision-making, which affects the teaching and learning at school. The opponents of SBM argue that SBM seems to have a minimal effect on teaching and learning; it merely results in a change in governance structure strengthened by the principles of accountabilities and transparency claimed by neoliberal policies. Another dimension to consider is to whom the authority is devolved. All SBM results in restructuring the governance of the school to a greater or lesser extent. Whatever its aspect and form, SBM at least consists of the devolution of authority to school directors or to school directors, teachers, parents and the community through a parent committee. The comprehensive aspect of SBM is the devolution of authority to a school management committee, which consists of school directors, teachers and various types of communities.

Based on the Education Strategic Plan (ESP) 2014–2018, the vision of the Ministry of Education, Youth and Sport (MoEYS) is “to establish and develop human resources of the very highest quality and ethics in order to develop a knowledge-based society within Cambodia” (MoEYS, 2014, p. 12). The envisioned knowledge-based society is a society with fast and sustainable development in which people have comprehensive knowledge of technology, a deep understanding of culture and decent living standards, living with happiness, peace and dignity. This envisioned society is in line with the Rectangular Strategy Phase III and the Industrial Development Policy 2015–2025, which aims to shift Cambodia from a low-income country to an upper medium-

income country in 2030 and a high-income country in 2050. MoEYS has introduced policies on decentralization and deconcentration to sub-educational authorities, particularly schools, through the implementation of SBM in order to achieve educational goals and local ownership (MoEYS, 2014, p. 12). Cambodia is subscribed to the Sustainable Development Goals (SDGs). In order to achieve Goal 4 of SDGs, the MoEYS has adopted Cambodian Education Roadmap 2030 and the National Policy on Lifelong Learning that are required more roles of schools to make the learning happening at school.

A large proportion of MoEYS's annual budget will be allocated for SBM and all educational stakeholders are called upon for strong involvement and support in improving student learning at school. The internal actors in the schools, such as school directors, administrative staffs and teachers, are under pressure to improve the outcomes of schooling, which seems relatively simple and straightforward in theory but, however, is complex in practice. This issue will cover articles related to several aspects of teaching and learning at school under the SBM reform, such as the initial teacher education for teachers, continuous professional development, school directorship and concept-based learning. These articles may shed light for policy makers, educational practitioners, school directors and teachers in policy formulation and the practice of SBM.

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Article

Towards Effective School Leadership and Management Practices in the Primary Education Level in Cambodia: A Review of Selected Cases

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Abstract

The Ministry of Education, Youth and Sport (MoEYS) continues strengthening the decentralized governance system and school leadership and management practices to achieve national education goals, especially to enhance students' learning achievement. Outstanding cases were identified for award winning. This research was conducted to identify mechanisms to that help schools ensuring effective leadership and management practices. The research was based upon an in-depth multiple-cases study using qualitative methods to explore key stakeholders' perspectives and experiences on working strategies and strategic directions to ensure effective school leadership and management practices at the primary education level. A triangulated data collection method of interviews and focus group discussion, document reviews and observations were used to build evidences of those successful cases. The results reveal that strengthening school leadership and management at school level was the key to success. Furthermore, governance from the national to sub-national and school levels were the main and inseparable

mechanisms to achieve the reform goal in effectively managing primary education and schools.

Key Words: School leadership and management, effectiveness, mechanism, education governance, centralization, decentralization and primary education.

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Introduction

In many countries including Cambodia, effectiveness of leadership and management has been practically and widely identified as an important mechanism for mass educational reform and for enhancing educational attainment (MoEYS, 2014; OECD, 2009; Hargreaves, Halasz & Pont, 2007). In achieving a long-term and national vision “developing human resources of the very high quality and ethically sound in order to develop a knowledge-based society within Cambodia”, the Ministry of Education Youth and Sport (MoEYS) continues reforming all levels of education from pre-school to higher education (MoEYS, 2014, p.12). Accordingly, the latest Education Strategic Plan (2014-2018) has three priorities: (1) to ensure equitable access to education services for all, (2) to improve the quality and relevance of learning; and (3) to strengthen effective leadership and management of education staff at all levels” (Hang-Chuon, 2017; MoEYS, 2014). Moreover, the current landscapes of education reform cover a broad area of: administration and general management, academic management, education finance management and personal management (Hang-Chuon, 2017, p.7). The effectiveness of leadership and management are considered as the heart of the current reform and educational development in Cambodia.

In Cambodia, school-based management is gradually recognized as a strategic policy and has interpreted into action since 1998 (Shoraku, 2009). Initially, school-based management was carried out as an attempt to achieve Mellenium Development Golas (MDG); the goal was set to achieve the universal ‘Education For All’ policy. The development agenda was to reduce the gap of inequal access to the quality education for all children in different socio-economic situation. However, the overall

achievement reveals that the policy formulated and the actual results were almost completely contradictory (Shoraku, 2009). It is the fact that school-based management could not be fully achieved and sustained due to lacks of policies and regulation framework. School-based management were constrained by limited support, effective school governance, and leadership and management capacities (MoEYS, 2018).

World Bank (2007) refers the framework of school-based management and decentralization is a transfer of authority in the decision-making from the national to the institutional level and from the institutional level to responsible division). In the context of Cambodia, however, the level of autonomy at school remained very limited, especially in managing school resources (i.e. financial and human resources (Shoraku, 2009). In particular, self-management were not capable to function schools well. On the other hand, key stakeholders of schools including board of directors, directors, teachers, parents, and community were unable to catch up with educational changes and development trends to effectively implement the existing policies (Shoraku, 2009).

Further, participations of the communities in school management and development were not so active. School community members are assigned to take part in all forms of decision making related to operation and to enhance engagement from the state and the civil society for promoting both quality and equity of education (Collins 1998). In reality, decision making was only made by selected numbers within power and authority position, which contradicts to administrative procedures (Shoraku, 2009). Parents, for example, are important contributors to promote both equity and quality of education; most of them, especially in rural and remote areas, considered children's learning are the responsibilities of teachers and are less involved in activities related to educating children at inside and outside schools. In addition, the possibilities of parental involvement and other members in decision making in school management and academic affairs were relatively low.

One of the three priority areas in the previous educational reform agenda was to strengthen decentralized management system by providing autonomy to schools (MoEYS, 2014). Up to date, although effective school leadership and management remain as a key challenge in the education system, the award-for-best performance mechanism has identified best cases. Thus, this research aims to identify appropriate mechanisms which help to improve effective leadership and management practices of those primary schools. In addition, Tithe findings of this paper

contributes significantly to relevant education policy development on improving school leadership and management in the primary education level.

Conceptualizing School Effective Leadership and Management Practice

In principle, effective school leadership and management influence on students' learning achievement, school performance and achievement (Lunenburg & Ornstein, 2012; Morefeild, 2007; Foskett & Lumby, 2003). The implementation of school leadership and management help ensure that all children are accessible to quality of education equally and to improve students learning achievement (Caldwell, cited in Foskett & Lumby, 2003). Moreover, school leadership and management are applied to achieve national and institutional educational goals. Importantly, school leadership and management primarily focused upon students' academic achievement, school infrastructure and human resource management at school level (Foskett & Lumby, 2003). School leadership and management are responding to community needs and to guarantee that schools provide social and economic benefits to the communities (Shoraku, 2009). For example, a rate of educational return is to directly beneficial to students, parents and the community as a whole.

Another main goal of school leadership and management is to support student learning either directly and indirectly (Foskett & Lumby, 2003). Hence, as a common practice, school strategic plans must be clearly demonstrated in the stated goals and activities to improving student's learning performance and achievement. In relation to this, the decision making on resource allocations and activities such as staff recruitment, professional development, school monitoring and evaluation are conducted to promote teaching and learning activities and achievement.

The effective approach on school leadership and management practice in schools include: decentralization, participatory school leadership and management, self- school management and monitoring and evaluation (Lunenburg & Ornstein, 2012; World Bank, 2007). An effective shelf-school management is also based on the implementation of decentralization system by distributing certain degree of authority and responsibility school in term of decision making, developing and implanting school strategic planning, and allocating schools under the framework of education policy and school accountability (Spinks cited in Foskett & Lumby, 2003). Thus, a precise guideline for practices through

is gone the development of policies and legal frameworks on school leadership and management systems.

The function of leadership and management are to ensure workable governance and management system for day-to-day school operations, development and sustainability. In relation to this, school directors or management team's roles involve in two main aspects: enhancing autonomy through legislative and policy implementation; and, shared authority and responsibilities in decision making with the community members such as teachers, parents, and students (Foskett & Lumby, 2003).

As a formal practice, school directors are officially appointed to provide leadership and management in schools. The effectiveness of school leadership and management largely depends on capacities, commitment, and education core values of school directors or management team and teachers. At school level, the director plays an important role in leading and managing schools which is an integral part in determining the success of the schools, staff and students as in the word of Nath, "in schools, the quality of education is the heart of students. Good teacher is at the heart of the classroom. Good director is at the heart of the school" (Morefield, 2007, p. 1). Moreover, leadership has a tremendous impact on the school culture, students' learning and supporting system (Morefield, 2007).

Furthermore, in leadership position, school directors play an important role in leading the school to achieve vision-mission for school development, sustainability and transformation (Senge, et al, 2012; Hargreaves, Halasz & Pont, 2007). Also, school directors play important roles in creating learning culture and environment for children development and growth physically, intellectually and emotionally (Cordeiro & Cunningham, 2013). Another main role of school director is the academic leaders and managers. In such a role, school director works to achieve national and school educational goals by improving school performance, implementing national curriculum, managing school curriculum and instruction, creating school culture and environment and providing sufficient resources to support teaching and learning, providing students support services and providing staff professional development programs and community outreach and engagement (Morefield, 2007).

Therefore, establishing a school leadership and management system is identified as one of key strategic policies for education reform and development as stated, "School leadership is an education priority

around the word” (OECD, 2009, p.3). Four policy levels are formulated in most of the Organization for Economic Co-operation and Development (OECD) countries to support school leadership practices. They include: redefining school leadership responsibilities; distributing school leadership; developing skills for effective school leadership; and making school leadership an attractive position’ (OECD, 2009, p. 13).

In Cambodia, the MoEYS developed ‘School Director Standards’ for ensuring effective leadership and management practices in schools. For good leadership and management, duties of the director consist of academic qualifications and working experiences, school leadership capacities and characteristics, critical and innovative thinking skills, school leadership and management; leadership on curriculum, teaching and learning; and school and community connectivity (MoEYS, 2017). The primary goal of the Cambodian school director standards is to set criteria to recruit and develop prospective directors to provide effective school leadership and management in schools nationwide (MoEYS, 2017). This paper makes use of these aspects of school leadership and management as a framework to review and document best practices selected for the cases.

Research Methodology

An exploratory multiple case study approach was employed in this research. In achieving the study objectives above, two main sources of data were used: primary data from in-depth interview, focus group discussion and field observation as well as secondary data through, the review of relevant documents. Data were collected and analyzed qualitatively. For primary data source, 35 key school stakeholders from three primary schools were contracted for the interviewed and participated in focus group discussion. They included three directors, nine deputy directors, five school supporting committee, 20 teachers, and two guardians/parents. The semi-structured questionnaire and informal questionnaire were used to collect participants’ experiences, practices and perspectives. The research covered effective school leadership, management practices and mechanisms to ensure effective school leadership and management practices in primary education level nationwide. For secondary data, relevant documents such as regulation, policies, strategic plans, national standards and administrative documents were reviewed and analyzed. Moreover, information from school observations was used to explore the process of leading and managing schools. The observation focused on

recording various leadership and management activities happening formally and informally in schools.

The data were analyzed in two main steps within-case analysis and cross-case analysis (Yin, 2014). The two sources of empirical data collection: primary and secondary data was qualitatively recoded and analyzed by identified the thematic patters, starting with open coding, grouping into categories and themes (Saldana, 2009). The second phase of data analysis was cross-case analysis in which the process to compare and contrast key stakeholders' experiences and perspectives in leading and managing the schools. The cross-case analysis was done with comparisons with significant theories on school leadership and management in the form of synthesis for this research finding (Yin, 2014; Saldana, 2009).

Results and Findings

The synthesis of the results of the three schools and theories revealed that the effectiveness of leadership and management at primary schools in the study area was largely based on two levels of institutional capacities: the schools and relevant departments at the ministry level. The discussion of results primarily focused upon the ways forwards to ensuring effective school leadership and management practices at primary schools nationwide. A proposed mechanism by the research participants include: (1) Recruiting and appointing school director; (2) Mandate of school director; (3) School directors' roles and responsibilities; (4) Capacity development of school Directors; (5) Internal institutional support and external support to school director; (6) Performance evaluation of school director; (7) Socio-economic status of school director; and (8) Internal institutional reform.

Recruiting and Appointing School Director

Based on the government' mandate, school directors were formally appointed to lead and manage schools. The selection and appointment of school director were founded to be both direct and indirect impacts on school performance and students' learning achievement as in the words of a teacher, "*the appointment of good school leaders will promote school performance and also education development*". Up to date, however, the appointment of school leaders remained a great issue in the education system. Some participants expressed their concerns on school leader's appointment; a head of school support committee suggests that: "*the Ministry should develop and implement a transparent and systematic school director appointment procedures. For example, the candidates*

must sit for the selection examination. And, the selection methods, procedures and criteria is arranged and taken to ensure the appointed school directors to have willingness, commitment and capacities to provide leadership and management in schools”.

According to a review of the relevant documents similarly reveals a lack of policies and regulatory procedures to ensure effective and accountable leadership for appointing school directors; it was systematically lacking at both at schools and department in charge at the MoEYS. Although the Ministry developed the school director standards to sets out criteria on school directors’ functional qualifications, personal characteristics and roles and responsibilities, this standard was not yet officially implemented in the selection and appointment procedures. As a current practice, the selection of prospective school directors was mainly recruited among candidate inside the schools, they were in the line of the about-to-retired school directors. Concerning this, a school director suggests that *“the criteria and procedures on school director appointment must be improved to be more transparent and corruption must be abolished. Qualified candidates with functional qualifications to provide school leadership and management must be appointed”*. In the same time, a head of school support committee adds that *“of course, we can select a deputy director or a qualified teacher to be a school director. But, he or she must demonstrate the willingness, competencies and professional ethics to fulfill this leadership position”*.

Mandate of School Director

As practice in other countries, a mandate of the school director is one of strategic policies to ensure the development and sustainability at the school level. However, in the context of Cambodia, an analysis of legal documents indicates that the policy and legal framework on school director mandates, terms and conditions have not yet been developed. As a consequence, school leadership position was a life-time appointment. The appointed school directors would work until they reached their retirement without any formal performance evaluation. At school level, working conditions and the performance of school directors had both direct and indirect impacts on school and student’s performance and achievement (Lunenurg & Ornstein, 2012; Senge, 2012; Morefield, 2007). Moreover, school leadership and management influenced in different core dimensions of the schools for example school culture and environment, academic and administrative aspects (Lunenurg & Ornstein, 2012; Senge, 2012;

Hargreaves, Gábor Halász, & Pont, 2007; Morril, 2007; Morefield, 2007). Therefore, mandate of the school directors were required to be established in line with transparent and systematic performance and evaluation. The result from the interview suggests that school directors with outstanding achievements should be motivated and recognized both socially and professionally. Whereas, the school directors who could not fulfill their roles and responsibilities should be terminated his or her mandate.

School Directors' Roles and Responsibilities

The interview results show that an effective leadership and management practices at schools were ensured; roles and responsibilities of school directors and all levels of leaders in primary education required to be clearly defined. The participants during the interview comments that a clear framework on roles and responsibilities of education leaders in the primary education management system need to be established. And, such a framework needs to classify the divisions of responsibilities and authorities from the national to sub-national and school levels, as participants stated:

Everyone has responsibilities to provide supports and suggestions to schools. Especially, when there is a proposal or school development plan submitted to local authorities for requesting feedbacks, technical and financial supports. (Head of school support committee)

School directors must be clearly aware of their roles and responsibilities. For instance, they need to know why they take up the positions as school directors. If they do not know about this, they will surely fail. (Head of school support committee)

School directors must fulfill their roles and responsibilities effectively and responsibly. (School directors).

As discussed, the MoEYS developed the school director standards to illustrate the main characteristics and functional qualifications and roles of school directors. Based on the standard, the school directors' roles and responsibilities include: school leadership and management, curriculum leadership and teaching and learning, and community engagement (MoEYS, 2017). Thus, it is suggested that the framework on school director and school accountability need to be in line with the established 'Cambodian School Director Standards'.

Capacity Development of School Directors

Capacity development of school directors in school leadership and management was found as one of the main factors contributing to the effectiveness of school leadership and management. The results shows that school directors from these three study schools used different models for their professional development such as following the role model of other good school directors, observing, experiencing and doing. And, other parts of their on-the-job capacity development were knowledge and experience sharing, school partnership for staff capacity development, and school visits to observe good model on leadership and management.

Learning capacities

This study found that good educational leaders were good learners who had the capacities, commitment to learn and take good roles model in practicing in school leadership and management. Majority of participants believes that capacity to learn was the crucial tool to strengthen educational leaders' leadership and management competencies. Leadership capacity development began with individuals' willingness to learn and seek for opportunities and strategies to learn as in the words of one director, *"I take the roles model from other good directors and follow what have been effectively practiced in their schools"*. In addition, abilities to learn, open minded and willingness to develop education were found as the main factors to strengthen leadership capacities and practices as another director said, *"To catch up with the new innovation, I have to develop my own capacities"*. Also, being aware of strengths and weaknesses and areas for improvement were found as key methods for leadership capacity development as the head of school support committee raised an example on how a high-ranking educational leader builds up his leadership capacities:

Having the heart to work for educational reform and development, HE. Hangchoun Naron, upon his appointment as the Minister of Education, he is very concerned and worried about getting this position. As he spoke from his heart that having hold this position without solid foundation made him so worried. Thus, he tries to observe and to learn from other counties' experiences and practices. He managed to reach the current level of success because of his willingness, commitment and capacities to learn.

Knowledge and experiential sharing

The interview results confirm that knowledge and experience sharing from the good directors to other directors was one of good capacity development strategies. Taking role models from outstanding directors lead to development of creative ideas in leading schools to fit with social-cultural context. Most participants believed that knowledge and experience sharing were the key factors to contribute to leadership capacity development for school directors across the country as a head of school support suggested:

Invite all school directors from the same district and level of education i.e. primary school, lower secondary school, to the workshop to discuss about school management...Make the videos and share them (through social media) on school leadership performance to seek for public opinions on how to improve school leadership and management at the school level. By doing so, the public will look at leadership and management strategies. Also, they will be curious why some schools perform very well, whereas, others perform badly. Then, they give comments on what have been practicing and on how to improve them.

Establishment school partnership for staff capacity development

Building school partnership for staff capacity development was found as one effective strategies for staff capacity development in those study schools as one good school director asserted that “*capacity development does not necessarily require a physical attendance to formal training at schools. We can learn and upgrade ourselves by establishing relationship with other schools with good achievement and taking the experiences from them*”. For example, in 2004, the school director from one primary school signed Memorandum of Understanding (MOU) with one of the most prominent primary schools in Cambodia. The Memorandum of Understanding has expanded the scope and opportunities for educational management and development and staff capacity building between these two schools. In addition, an on-going communication between the directors from these two schools on ‘Leadership and Management Dialogue and strategies’ ‘Official study tour to learn and share experiences can strengthen the institutional capacities in the framework of school partnership.

Overseas school visit

The results reveal that overseas school visits provide directors good opportunities to observe and learn about school leadership and management practices in other countries. Some directors mentioned that, based on their personal experiences to visit schools in other countries such as Thailand and South Korea gave them with new insights and ideas for leading and managing schools. In addition, some participants said that the opportunities to observe the effectiveness of school leadership practices and participation in local and regional education events are practical methods for learning and developing leadership competencies and creating a diverse educational environment, as one director said about his own experiences:

From my observation, I found that primary education in the schools in other countries primarily focus on their culture, environment, hygiene, healthcare and safety. Thus, we should learn these good models on primary education from them. We need to cultivate our pupils with the love of the culture, environment, good living environment, good health and hygiene and safety since they are in the primary schools. Whenever we live in a good environment, our lives are prosperous. As long as we are healthy, the development will advance.

Internal Institutional Support and External Support to School Director

Directors needed to seek for and have various supports from both, internal and external institutions for school day-to-day operation and development. Currently, leading and managing schools were tough and complicated because of both internal and external influences. School directors had to address institutional challenges such as lack of resources (i.e. finance, human, physical, materials), information technology, culture, and environment (Morris, 2007). Meanwhile, political, social, economic and cultural factors also influenced on leading and managing schools. To address these challenges and to effectively manage school political environment and ensured good school operations, the school directors needed to have strong commitment, competencies and various supports from all key stakeholders. In relation to this, directors need emotional and inspirational support, technical support and financial support from inside and outside the school.

Emotional and inspirational support

Emotional and inspirational support from both inside and outside the institution was an integral part to motivate school directors to fulfill their duties. To be effective and successful, the directors needed support from all key stakeholders as one director said:

Regarding essential support, I think, first and foremost, we need support from: (1) the people working with us such as vice directors or board of directors, teachers and all staff in the school; (2) community or parents; (3) local authorities; and (4) development partners. These kinds of support are the strong foundation for school development and advancement. (Director)

In addition, the rewarding system was found as emotional support providing to school directors as expressed by one director “*Receiving the reward from the Ministry is a big motivation, I am so happy to receive it*”. The rewards given to the school directors motivated them to put more effort to fulfill their duties as one rewarded director asserted:

When school directors receive rewards, they will try to work harder to keep good reputation and they do not want to lose faces. As an illustration, I keep reminding the teachers in my school that our school was rewarded as a good school, thus, we need to be careful and we need to ensure that we keep performing well as we were rewarded and never let the publics judge us that this evaluation was incorrect afterwards.

Moreover, the agreement and support on initiative ideas related to school development planning created by the school was illustrated as an inspirational support given to school directors or school support committee. As a current practice, public schools were under the supervision and management of the relevant ministry departments. Thus, under the ministry governance framework, some initiatives or school improvement planning must be approved by the ministry. Thus, the approval and technical guidance and support from the ministry were also seen as the inspirational support to schools as one director said:

The crucial support that I want to get from the ministry are two main things: First, inspirational or emotional support, in that, the Ministry can provide me some ideas, opinions. For example, when the primary education department knows that we want to change our school to be a new generation school, they guide us to which departments or institutions to work with. Second, when we

implement our plan and face some challenge, the ministry departments will provide us some assistance, solution and guidance.

In addition to technical support, advices and approval from the department in charge of MoEYS were found as inspirational support to promote more initiatives and development activities created at the school level. Hence, it was strongly suggested by the participants that the relevant Ministry departments must be effective and supportive to schools, in term of their decision making and actions, because they directly influenced on the process of school operation and development.

Technical support

Majority of participants believed the technical support from the central government through MoEYS contributed significantly to the school development and management. As a current governance practice, having developed initiatives or plans, the school must seek the approval and guidance from the Ministry as stated by the school support committee: *“to be effective, school development plans and initiatives must be created at the school level. But as the working system, the schools must receive the approval and support from the ministry to proceed with the planning”*. He added that *“...initiatives are created at the school level, but it must be approved and supported by the upper layer authorities”*. Thus, to ensure the effective school leadership practices, it requires all levels of school management in the system to work well together and support each other as a working system, especially providing support to schools, in term of their competencies, expertise and opportunity. In line with the ministry guidance policy and framework, some technical work should be developed at the school level. For example, the strategic plan should be developed by internal key stakeholders (i.e. board of director, teachers and school support committee) at school, where they can create school initiatives to fit well with their school needs for improvement as the head of school support committee said: *“to be effective, the first and critical step of school development plan should be developed by the schools, in that, the schools need to initiate and develop their workable planning and determine effective strategies for implementation to fit well with their own school context”*. He added that, *“to be effective and successful, the schools must have capable directors to lead and carry out the initiative activities”*. In relation to this, the head of school support committee asserted, *“School must be staffed with excellent persons. It initially begins from the*

school...starts from school directors, teachers and the most important persons are the school directors”.

However, some participants express their big concerns on capacities of relevant in-charge persons at all levels that can negatively impact on primary education management system. While some participants mentions that schools should have a certain level of autonomy, in term of decision making and action taking, they also expresses another huge concern on limited competencies of directors to fulfill these functions as in the words of the head of school support committee, *“To be effective and successful, school leadership begins with capable school directors, however, currently some school directors still have limited capacities. Thus, it really needs the provincial and/or district departments to provide support and guidance to them”.*

In relation to this issue, the participants also shows the concern on the competencies of the relevant Ministry departments to supervise and to provide guidance and support to schools. As, a participant raised an example: *“if the school just make a proposal to be submitted to the provincial department, without any consideration or study on it, they skip their documents and then sometime blame and warn the school not to proceed with their plan to avoid problems”* (Head of school support committee). To address this problem, he suggested that the departments need to use their expertise to study deeply on the proposed school development plan prior to making decision as he said *“do not ban any initiatives, except, they bring negative effect on the nation or problems in schools”.*

The interview results shows a clear framework on the different level of Ministry department accountabilities and competencies need to be developed as the head of school support committee said, *“the provincial level also needs to have a clear management roles and responsibilities...And, they need to examine the school situational context, to identify their strengths and weaknesses and the areas of need for school improvement”.* Therefore, the higher level of school governance (i.e. Ministry, provincial, district) need to have capacities to provide technical support and guidance to schools under their supervision. For example, in term of their expertise and accountability, they need to have enough competencies to evaluate school development plan and provide technical support to schools, if needed. In other words, at the top level, the Ministry departments must be effective and supportive to schools, otherwise, it is

really challenging for schools to implement their school development plan or even to run their day-to-day operation as stated:

When there is a proposal submitted by the school, the provincial department has a big role to evaluate the proposal and also to provide emotional and technical support to schools. They have to study deeply on the proposal prior to making decision. (Head of school support committee)

The Ministry should look at the directions of the schools and find out what school directors want for their schools, and identify the school capacities. The Ministry should have the capacity to help the school to achieve their development goals. For example, our school's goal is to become a new generation school, and we have some cash contribution from parents but we still need more financial support to run our programs. Thus, the ministry should also provide some financial and technical support to our school. (Director)

Financial support

Beside the technical, emotional and inspirational support, the schools also needed financial support to develop and implement school improvement planning. As an illustration, in the process of transforming the school to become a 'new generation school', the school needs to have sufficient finance support to build up their physical resources and infrastructure, teaching and learning materials and equipment as one school director mentioned: *"Running new generation schools require sufficient financial support. Currently, the school is seeking for financial supports from parents and also the ministry"*.

Performance Evaluation of School Director

Another mechanism, proposed by the participants during interview was to develop and implement director performance evaluation. At present, the evaluation and selection of good school director was organized annually by using the evaluation tool covering these functional qualifications and actions:

Knowledge/qualification, competencies, school strategic plan, leading teaching and learning, professional development, school management, accountabilities, strengthening community

engagement, professional ethics, management outputs and youth development (MoEYS, 2017).

However, an official school director work performance evaluation has not yet been established. Some participants suggests that the development and implementation of a systematic and transparent performance evaluation would clearly identify well and weakly performed school directors. Based on this fair evaluation, good school directors should be motivated by receiving incentives and social and professional recognition. Whereas, poorly performed school directors should be accountable for their actions and face penalties as one director suggested that *“For school directors who cannot fulfill their roles and functions, they should be removed from schools or from this leadership position. Otherwise, it will negatively impact on students and schools as the whole”*.

This evaluation mechanism can be implemented effectively and smoothly when the school director's mandate is also established. As already discussed, the linkage of school director performance evaluation and mandate will lead to the completion of non-functional directors by virtue of the termination of employment mandated by legal basis.

Socio-economic Status of School Director

One of the main mechanisms to having qualified directors in schools was to promote socio-economic status of school director. One school director mentions that *“if school directors can have, good and suitable salary, they can live and work with value and honor in the society. Obviously, they do not want to do second and third jobs”*. Most participants suggest that the economics status of school directors should be socially acceptable because part of it can make school directors more influential, ethical and well respected, in addition to the power of knowledge as the leaders of education as in the words of one director:

If our living standard is poor, no one will listen to us. Instead, they will say that if you are strong, you will not be poor. However, we do not compete to get rich; we just want to have a good living status as others. And, the self-development and good economic status should be attached with our profession to catch up with this modern transition. For example, we also need help and strengthen ourselves in the right ways to build up ourselves to be a good model for our next generation and teach people to be united.

Internal Institutional Reform

Internal institutional reforms to strengthen the governance and management system of relevant institutions and primary schools also required to be done to ensure the effectiveness of school leadership and management. Regarding this proposed mechanism, the head of school support committee stated that *“the current educational system must be reformed including the internal management system of the institutions. The educational reform must be taken place at all levels of the management structure, from the top to bottom from the national to sub-national and school levels. This reform must be undertaken as a system, not only a single place, in that, the authorities and tasks must be delegated to relevant departments of their expertise”*.

Up to date, the MoEY continued its mission to pursue all-level educational reform, from pre-school to higher education. As a universal implementation, national education reform was a long and difficult process, requiring both timely funding and high efforts from all key stakeholders. In particular, this reform required all level of educational leaders to have sufficient capacities, commitment, dedication and sacrifice to pursuing reform goals as in the words of the head of school support committee:

The reform which related to the national or institutional reform is not a one-year or two-year reform, such a reform takes five to ten years. And, during this reform period, it requires manpower to work on it to pursue shared vision and goals. As we can see that the vision on the education reform in the 5th mandate is really good, and we hope that the upcoming 6th mandate, the new elected government will continue this reform journey to develop our education system. (Head of school support committee)

Discussion

School Leadership and Management System Development and Challenges

As presented in the finding section, the mechanisms proposed by the research participants are to establish the working system and procedure to have good and capable directors to hold leadership positions at schools. The proposed mechanisms to establish school leadership was found in line with the practices in many OECD countries. These developed nations treat the school leadership as an education policy priority to improve school

leadership practices (OECD, 2009). In the Cambodian context, effective school leadership practices remain as the main challenges in the system due to lack of relevant policies and regulatory framework, insufficient support mechanisms to schools, ineffective management and governance systems, limited self-leadership and management at school level. These current research results confirm the previous studies (eg. MoEYS, 2018; Shoraku, 2009).

Policy and regulation framework

Underpinning previous research results, this study found that school leadership and management system was not yet systematically established to ensure effective practices as observed elsewhere at the primary education level due to the lack of relevant policies and regulative framework on: (1) school leadership and management practices; (2) school director's appointment, role and responsibilities and promotion; (3) transparent and fair supporting and rewarding system; and (4) school director performance evaluation. Another challenge is the lack of related policy to attract and retain the capable and potential candidates to hold school leadership positions. Also, up to date, there is yet a clear guideline on school director appointment especially functional qualifications, experiences and commitment of applicants to ensure that they can effectively provide leadership and management in schools. As a common practice, school director selection is not competitive and attractive to director applicants from both within and outside the institution in order to select candidates with a high degree of abilities and commitment to take up school leadership position. And, school director is a lifetime appointment since there is yet policy on director performance evaluation and mandate. Guidelines and tools to monitor and evaluate school directors' job performance are not established. Thus, the appointed school directors generally stay in this position until they reach their retirement.

Implementation of the centralized system

As a current practice, the centralized system leads to low levels of authorities and accountabilities distributing to schools (Shoraku, 2009; Lunenburg & Ornstein, 2012; Foskett & Lumby, 2003). At present, school directors do not have enough authorities to make decisions, to develop and implement school development plan, to allocate and generate resources. As a common practice, school director's job is to handle administrative tasks and report to provincial or municipal departments. As a consequence, the 'complex organizational structure and more complex pattern of

decision making' (Hargreaves, Halasz & Pont, 2007) are not treated as the main roles of school director in Cambodia. And, in the context of Cambodia, it is generally observed that school leadership seems to be less interactive to the environment, both internally and externally. Leadership and management at the school level are likely to be in the state of isolation from the national and regional education development and trends. Thus, school directors or management team sometime is in the state of losing directions for school development and change management. Likewise, school directors are unable to management change and ensure good school operation influenced by internal and external factors and unable to lead schools in line with educational development and trends locally and regionally. Similar to the previous research findings (e.g. Shoraku, 2009), this current research results showed that the implementation of school-based management is not completely successful because of limited capacities of school leaders to catch up with the context of education change and education management system. Previous research conducted by Shoraku (2009) found that Cambodia imposes school-based management but the real practices did not fully in accordance with the guidelines. In relation to this, the centralized school governance system and limited self-school management capacities mismatch with school directors' functional qualifications, roles and responsibilities and characteristics set in the Cambodian school director standards and practices in other countries.

School leadership and management capacities

School director capacities and commitment are central to ensuring the effective school leadership and management in schools. However, as discussed earlier, leadership and management capabilities of the school director remain as the main concern in the context of educational reform and development in Cambodia. And, to date, the primary education system still faces some challenges to attract and retain qualified school directors to this position. This current research findings revealed that the whole education system cannot be ensured to have qualified school directors due to the lack of education policies and legal framework to attract, develop, support and retrain good directors to work in schools nationwide. A general observation revealed that some school directors have achieved outstanding performance because they have support from the ministry, community, good school location especially individuals' abilities, commitment and personal characteristics to fulfill their duties. Yet, such a

remarkable achievement cannot be ensured in all primary schools nationwide.

One of the main goals of school-based management is to reduce the students' learning achievement gaps in schools with different socioeconomic context (Shoraku, 2009). This goal can be achieved largely depending on the school leaders' capacities to provide leadership and management to respond to school situational context, community and national educational goals. The Cambodian 'School Director Standards' illustrates the characteristics and functional qualifications of school directors, as yet, applying these national standards in the process of school director selection, evaluation and also leadership and management practices in schools are very limited.

Towards Effective School Leadership and Management Practices at Primary Education in Cambodia

The synthesis of this current research findings with international literature indicates that the relationship between schools and upper level of the educational authorities play equal critical roles to ensure effective school leadership and management practices in primary schools nationwide. Therefore, the capacities of the teachers and educational officials at all levels need to be strengthened.

Strengthening school-based leadership and management capacities

As a current practice, school leadership and management are officially exercised by school directors and/or management team. As discussed, the mechanisms proposed by research participants demonstrate that, the first and foremost, the school must be led by the directors with competencies, education values and commitment. And, at the school level, a strong and distributed leadership and management must be ensured. School leadership and management directions and purposes need to be aligned with national standards and policies, and respond to the school context and community needs. More importantly, leadership and management of schools need to ensure that the rate of education returns and values are provided to community stakeholders, especially students and parents. In addition, school leadership and management should not be in isolation from the outsiders or external bodies. Community and key stakeholder involvement from the ministry, provincial and district levels contribute significantly to school development. And, one of the major

roles of school directors is to engage all key stakeholders in the process of school planning and development.

Strengthening school governance system

Effective school-based leadership and management require the development of a leadership and management system ranging from the national to sub-national and school level. To pursue this goal, first and foremost, the framework on competencies, accountabilities and authorities of the school leadership need be developed. In relation to this, in line the national, regional and global educational development trends, the roles and responsibilities of different levels educational leaders should be redefined. Moreover, the central levels of authorities need to be effective and supportive in term of exercise their authorities and competencies. Financial, technical and emotional supports to school directors are identified as the main mechanisms for effective leadership and management practices in schools. In this regard, the roles and responsibilities of upper level authorities to work with schools should be redetermined in line with national, regional and global educational development trends. More importantly, authorities at the higher level of the higher authorities such as the ministry, provincial and district levels must effectively supportive to schools.

Conclusion and Recommendation

The strategies emerged from long-term perspectives of this research. The participants especially Cambodian outstanding school directors and international practices demonstrated that school leadership and management practices cannot be isolated. The whole primary education system must work together to pursue the ministry vision-mission and especially pursue the vision and mission of the Royal Government of Cambodia to transform Cambodia to become higher middle-income country in 2030 by strengthening human capital.

To achieve the national educational goal in implementing decentralized system and effective school leadership and management, relevant policies, standards and countabilities need to be strengthened. The definition of school-based leadership and management must be apporpreaitely defined and applicable in the context of Cambodia. In relation to this, the framework and indicators on expected learning outcomes at the primary education level need to be developed to guide and monitor school operation and development. These materials can also be

used as the tools to indicate school leadership and management purposes and school director performance evaluation. School leadership and management system need to be established through the development of relevant policies and legal frameworks in order to strengthening school governance system from the national to sub-national and school levels.

To strengthen leadership and management practices in schools, relevant policies and legal framework on school director appointment, mandate, professional development, roles and responsibilities, support, and performance evaluation need to be updated and/or developed in line with national and regional educational development and trends. Also, relevant policies to promote school director economic status and to attract and retain qualified school directors to hold leadership positions need to be developed and implemented. Moreover, soci-economic status of school director can be promoted by providing reasonable salaries and working conditions. Implementing the established 'Teacher Career Pathways' policies can partly address some of these current challenges. Continuing and expanding a transparent rewarding system, with national, social and professional recognition, to motivate school directors who are dedicated and committed in leading and managing schools to reach good school achievement and realize national educational goals. Meanwhile, the development and implementation school director mandate should now put into serious consideration to modernize the school leadership and management system in the Cambodian education reform context and in line with the international practices. Overall, the main purpose of creating these relevant policies and legal frameworks are to establish effective procedures on school director selection, development and performance evaluation to have qualified school leaders in the education system. Importantly, to ensure that the schools are led by directors with commitment, willingness, education values and competencies to develop schools to become learning organizations.

In addition, the Primary School Directorship of Cambodia and the Annual National School Leadership Meeting/Congress should be established to provide a platform for school directors to meet, discuss, exchange knowledge and experiences related to effective school leadership and management. And, online Communication and resources to provide school directors documents related school leadership and management, educational development and trends, national standards and policies and research reports/articles. Establishing this online platform is to build the social network of school directors across the country and to provide

support to school directors with ideas on effective school leadership and management, learning materials and other relevant documents. With the support of the sub-national levels, the forum will also be a platform for directors document the best school leadership and management practices by conducting action for publication and sharing nationwide. Another purpose of establishing this online networking and resources is to equally provide all directors technical and inspirational support and to empower of directors through social and professional recognition and to encourage director to take their responsibilities professionally and ethically.

Educational governance and management systems from the national to sub-national and school levels need to be strengthened. In line with national policies and school-based management framework, the levels of authorities, autonomy and accountabilities should be distributed to school directors or management team to make decisions and to develop and implement school improvement planning. Regarding this practice, national and sub-national officials/leaders need to play their roles in facilitating coordination and supervision of school operations and school development. Importantly, they need to be very effective and supportive to schools. Therefore, relevant policies on school leadership and management system and decentralization need to be updated/established and implemented.

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Article

Models of Teacher Professional Development in Cambodian Primary Schools: A Review of Selected Cases

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Abstract

The attainment of the quality of education set in the SGD4 relied on the availability of adequate and qualified teachers at school. Cambodia has made a good progress in term of quantity and quality of pre-service teacher education and training (PRESET). However, Teacher Professional Development (PD) has been less attended although it has been recognized as important to upgrade teachers' qualifications. According to various studies and available data, the Ministry of Education, Youth and Sport has provided a few opportunities of PD such as short course workshops, cluster based technical meeting and school based technical meetings. However, it is found that these approaches are not effective as they did not make any changes to the practices in the classroom. This article reviewed four PD models in primary schools such as cooperation schools, normal schools, school supported by Save the Children and New Generation School with regards the conceptualisation of effective PD: needs assessment, organisation, determination of content, training process, follow-up and evaluation. Modalities, advantages and disadvantages for each model are presented and discussed.

Key Words: Professional Development (PD), in-service training (INSET), effective professional development, cascading, technical meetings, mentoring, professional learning community (PLC)

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Introduction

Education has been central to the national-building of all Cambodian governments since French decolonisation in 1953. Education became even more important for the reconstruction and rehabilitation of the shattered nation following the collapse of the Khmer Rouge, during which 80 percent of teachers were killed. Of the 22,000 teachers in Cambodia in 1968, 7,000 remained in 1979 but only 5,000 returned to teaching and only 300 intellectuals were left after 7 January 1979, the date that marked the end of Pol Pot's regime (MoE, 1980, p. 48). Despite the scarce human resources in the education sector, the new regime managed to build the education capacity at all levels (primary education, secondary education, higher education and adult education) so that children and adults were provided access to education. The regime aimed to quickly make schools and teaching-learning materials available and recruit teachers to work in some parts of the country (Asian Development Bank, 1996). In the early stage of this education development, the main focus was on providing access, therefore the quality of education was neglected. Under the slogan “Those who have a little level of education, teach those who have nothing and those who have a higher level of education, teach those who have lower level of education,” the government was able to recruit and train individuals who survived the Khmer Rouge with some educational background. Teachers were trained through a various forms of short-term training courses lasting one week, two weeks three weeks or one month. This practice continues today and has a strong impact on the quality of education in Cambodia.

Since 1993, education has been encouraged by globalization and regionalization to produce the human resources required to serve the socioeconomic development of the nation. In order to do this, the Ministry of Education, Youth and Sport's (MoEYS) vision is “to establish and develop human resources of the very highest quality and ethics in order to

develop a knowledge-based society within Cambodia” (MoEYS, 2014, p. 12). The envisioned knowledge-based society is a society with fast and sustainable development in which people have comprehensive knowledge of technology, a deep understanding of culture and decent living standards, living with happiness, peace and dignity. This envisioned society is in line with the Rectangular Strategy Phase III and the Industrial Development Policy 2015–2025, which aims to develop Cambodia from a low-income country to an upper medium-income country in 2030 and a high-income country in 2050. The education system plays an important role in achieving this vision through producing skilled human resources to serve the knowledge-based society. Under the leadership of Dr. Hang Chuorn Naron, who has been the Minister of Education since 2013, changes to make education sector more systematic were initiated. Eight reform priorities were set as policy agenda. Those education reform priorities are (1) improving the quality of learning and teaching; (2) increasing civil service and teachers’ salaries and introducing merit-based appointments; (3) providing more resources to the front-line service providers; (4) reforming the examination system; (5) establishing a policy think tank for education; (6) reforming youth and vocational skill programs; (7) implementing higher education reform and student job counselling; and (8) reforming the sport sector to prepare Cambodia to host the Southeast Asian Games in 2030.

These eight priorities aim to improve the quality and efficiency of the public service provided by MoEYS. These eight priorities were consolidated in the Education Strategic Plan 2014–2018, which lays out the three main policy objectives in education: “Ensuring equitable access to education service for all, enhancing the quality and relevance of learning, and ensuring effective leadership and management of education staff at all levels” (ESP 2014–2018). Consequently, the government and MoEYS have increased their commitment to the expansion of education at all levels, particularly basic education, and to improve the quality and relevance of education. The results of the expansion of the education sector, increased numbers of classrooms and schools and a pressing need for more qualified teachers in the schools. To improve the quality of education, a new curriculum was devised and learner-centered approaches to learning were introduced.

Although significant progress has been made under the new leadership of MoEYS, Cambodia’s education system is still in crisis, especially in terms of the quality of education. According to national

assessments of Grades 3, 6, and 8 conducted by the Department of Education's Quality Assurance of the MoEYS, student learning in language, mathematics and science is low. On average, according to 2016 MoEYS' assessment, less than 40 percent of the students could attain passing scores in these subjects.

Several factors that contribute to quality of children's learning have been studied by academics and policy-makers. Empirical analysis of different periods and education systems in all contexts suggests that the quality of education is reliant on the availability of adequate and qualified teachers at schools. The current basic education system in Cambodia is served primarily by poorly performing teachers with non-tertiary qualifications (Tandon and Fukao, 2015), under-qualified contract teachers and less accountable teachers. To tackle the issues pertinent to the quality of teachers, the MoEYS reform focuses on teacher training and development, teacher deployment, the development of teacher trainer centers and upgrading teachers' qualifications and teachers' career pathway. Within the context of the reform, MoEYS has developed a number of policies, standards, frameworks, sub-decrees and guidelines in order to guide the development of education in general and development of teachers in particular. Among these regulatory documents, there are six key policies related to teacher development as follows:

- 1- Teacher Policy Action Plan (2015)
- 2- Teacher education provider standards (2016)
- 3- Curriculum framework of general education and technical education (2016)
- 4- Ministerial regulation (Prakas) on equivalency program for upgrading teacher qualification (2016)
- 5- Teacher career pathways (2018)
- 6- Sub-decree on integrating and upgrading Battambang and Phnom Penh Provincial Teacher Training Center and Regional Teacher Training Center to become Teacher Education Colleges (2017)

Although there have been policy initiatives and programs to upgrade all unqualified teachers to qualified teacher status through using selection criteria for new teachers and introducing a short professional development programme, the majority of teaching staff do not hold bachelor's degree as required by Teacher Policy Action Plan that all teachers must have at least bachelor's degree in 2020. As shown in Table 1 below, approximately 80 percent of the teaching force hold certificates below a bachelor's degree.

Table 1. Number of teaching staff by educational level and school level of teaching

Level of education held by teacher	School level taught by teacher			Total (%)
	Pre-school	Primary school	Secondary school	
Primary	181	1,104	494	1,779 (1.93)
Lower secondary	1,662	12,521	5,084	19,267 (20.94)
Upper secondary	2,814	28,701	20,305	51,820 (56.32)
Bachelor	218	3,585	14,231	18,034 (19.60)
Master	2	95	995	1,092 (1.19)
Doctoral	0	3	12	15 (0.02)
Total	4,877	46,009	41,121	92,007 (100)

Source: MoEYS indicator in 2017

Based on this data, attention must be paid to the continuous professional development (PD) provided for teachers. Given that PD is recognized to be indispensable for dealing with issues pertinent to teaching quality and student's learning outcome, the Teacher Policy Action Plan sets two main actions related to professional development (PD) to be undertaken: institutionalizing a system of school-based in-service training (INSET) at all educational establishments (Teacher Education Policy Action Plan (TPAP) Action 6.2.2), including involvement of INSET trainers meeting Teacher Education Provider Standards (TEPS) criteria; and establishing and expanding mechanisms to provide continuous technical supports (TPAP Action 7.3.2), such as study clubs, professional subject societies, technical support groups and regular technical meetings among subject specialists. Despite these policy initiatives, the current PD programs have not provided teachers with appropriate development programs or helped teachers to implement new curriculum. The current PD programs are often run traditionally in workshops and they do not change teachers' behavior or students' learning outcomes (Hang Chuon, 2017). It is also found that the current PD programs are not providing

teachers with the knowledge and skill to teach in the classrooms. For this reason, teachers, especially those who were trained in the previous system, still have little mastery of the subjects they teach and lack the pedagogical skills to teach students, especially those in disadvantaged areas. Chhin and Tabata have argued that much of the training provided to primary school teachers does not have an impact on pupils' achievement (2003).

This paper presents the findings from research conducted by Education Research Council (ERC) team on teacher professional development programs at four different types of primary schools in Cambodia and explores an effective professional development model to improve the practices of teachers in primary schools. First, the framework for effective PD programs will be presented. Then, ongoing cases of PD programs at four different types of primary schools will be reviewed. Finally, the implications for policy are presented to policy-makers.

Towards a framework for an effective PD program

Professional development (PD) refers to a variety of educational experiences related to an individual's work and is designed to improve the practices and outcomes of the students (Patton, Parker, & Tannehill, 2015). To meet this aim, PD must be able to bring about changes in teachers' practices and in the classroom. Examining the contexts and the various models of INSET, the literature shows that an effective INSET encompasses six dimensions: (1) needs assessment; (2) organization; (3) determination of content; (4) training process; (5) follow up; and (6) evaluation (shown in Figure 1). Each dimension is underlined by the principle of adult learning. The conceptual framework of this research is adapted from the effective INSET strategies models of O'Sullivan (2001).

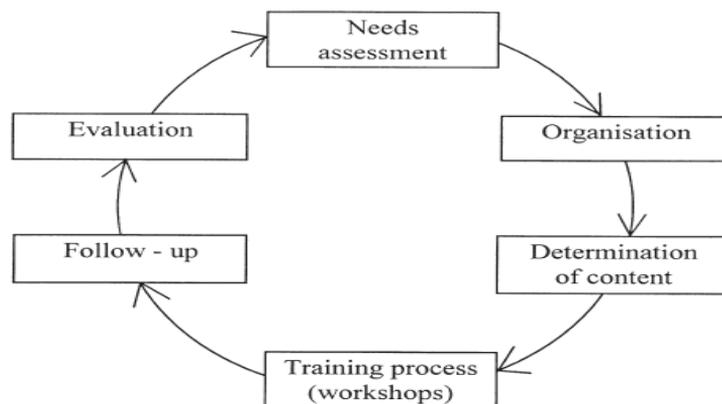


Figure 1: INSET Strategies Model for INSET programs (O'Sullivan, 2001, p. 3)

Adult learning takes place only when teachers can see the goal of what they do, when learning is focused on problems and not on content, when they bring significant knowledge to the learning process, when learning includes experiences that can upset old beliefs and generate meaningful change and when they develop a growing interest in a particular subject (Beavers, 2009). It is therefore important that these six dimensions of PD are underpinned by eight core features to allow teachers to develop as active learners who are able to improve learning of the students. The core features of PD proposed by Kevin & Deborah cited in Patton (Patton et al., 2015) comprise of:

- *Core Feature 1: PD is based on teachers' needs and interests.* A needs assessment should be conducted to identify teachers' most required training needs, taking into the account the issues faced by teachers and students. Only when PD addresses the needs of the teachers can it bring about the necessary knowledge, skills, values and belief to teachers. The content of the training should be prepared based on the needs assessment result.
- *Core Feature 2: PD acknowledges that learning is a social process.* Adult learning takes place when it builds the relationships among teachers rather than focusing on each isolated individual. Rather than being imposed with a formal structure or arrangement, PD should be organized in a way where teachers can work together.
- *Core Feature 3: PD includes collaborative opportunities within learning communities of educators.* Teachers learn from each other in the professional communities that exist beyond their classrooms and schools.
- *Core Feature 4: PD is ongoing and sustained.* Change in teacher practices and classrooms will not happened in a day. PD must be a continuous process that allows teachers' practices to change in the classroom and includes follow-up and bringing the experiences back for discussion and reflection in the learning group.
- *Core Feature 5: PD treats teachers as active learners.* Active learners learn through reflection, inquiry, appreciation and constructing their own meaning and understanding.

- *Core Feature 6: PD enhances teachers' pedagogical skills and content knowledge.* Teachers must be equipped with teaching method and knowledge for effective learning and teaching.
- *Core Feature 7: PD is facilitated with care.* Teachers needed to be heard rather than imposed upon, appreciated rather than blamed.
- *Core Feature 8: PD focuses on improving learning outcomes for students.* PD must improve students' achievements. PD must be designed to improve the students' learning outcomes in different contexts rather than place too much focus on new teaching methodologies.

Research methods

The study is conducted at five primary schools located in the Kampong Speu, Kampong Cham, Prey Veng, Siem Reap and Rattanakiri provinces. Among these five schools, there is one school whose teacher PD is supported by the non-government organization Save the Children. The below table shows the names, locations and socioeconomic status of the schools. The research fieldwork was carried out from June to August 2018. The data were collected through key informant interviews with officials from the teacher training department, provincial offices of education (POEs) and District offices of Education (DOEs); semi-structured interviews with school directors and deputy directors and focus group discussion with teachers.

Table 1: List of visited schools

Provinces	School name	Districts
Kampong Speu	Svay Char	Kong Pisei, Sdok, Sdok
Rattanakiri	Borey Kamkor Buon	Kachanh, Phum Buon
Prey Veng	Kampong Popil	Pea Reang
Kampong Cham	Angkor Ban	Kang Meas
Siem Reap	Chambak Hae	Pouk commune, Pouk district

The school directors and deputy school directors were invited for interviews to understand the PD available at their school, the role of school directors in supporting the teachers' PD at their schools and their experiences in leading and guiding the teachers' PD. In conducting the

interview, researchers used appreciative inquiry (AI) to understand the best practices of PD at school. Rather than asking, “What is going wrong?” the interviews were directed at finding out what is going well and the potential and the assets of the PD at each school. The interviews were in the form of constructionism, where meaning is constructed from participants’ experiences.

Teachers were interviewed as group about their experiences and perceptions of the PD available at their school, the enabling conditions for them to learn, the role of school directors and the outcome of PD on students’ learning outcomes.

Activities of technical meetings were observed in order to understand the process and the content of the PD and what approaches are effective.

Officials from teacher training department, primary education department, curriculum development department, provincial offices of education (PoE) and district offices of education (DoE) were interviewed to understand their role in providing PD, the modalities of PD, the PD materials and the support they give to the school though providing PD at school. More importantly, the interviews focused on the interaction between these actors in providing PD at school.

Policy documents, regulations, PD programs and PD materials are also examined to understand the content, complexity and relevance of PD to the teaching and learning in the classroom. The school’s documents are also examined, such as the school’s profile, development plan, documents related to PD from PoE, the school’s PD plan, reports of technical meetings, inspection report of District Training and Monitoring Team (DTMT) and any artifacts related to PD.

Case studies: Four PD models

From the research, four cases of PD will be presented in below sections. Each case has its own features, issues and advantages.

Teacher PD in cooperation schools provided by VVOB

Teacher PD in cooperation schools (*Sala Thnal*) is slightly different to regular schools. Cooperation schools are the selected schools where teacher trainees from teacher training centers do their practicum. Teachers in cooperation schools have more chances to receive PD than those in regular schools. This research studies the case of Veal Vong Primary School, which is one of the cooperation schools in the Kampong

Cham Provincial Teacher Training Center. Veal Vong Primary School's director stated that her school is a cooperation school, thus the school has received opportunities to be trained on all of the methods that have been applied in the provincial teacher training centers to ensure consistency between the teacher preparation program and real classrooms. For example, just prior to the interview taking place, the cooperation school had been provided training about the Inquiry-Based Learning approach every Thursday over an eight-week period by a provincial teacher training center's trainer.

Cooperation schools' teacher PD is usually provided by Flemish Association for Development Cooperation and Technical Assistance (VVOB) and uses the cascade model. The cascade approach transmits the knowledge or information from the top (from experts and specialists) to the lowest group of teachers (Ono & Ferreira, 2010), which is called "Training of Trainers" (ToTs). The training is conducted at several levels by trainers drawn from a level above. Using the cascade model, VVOB train the national core trainers (NCTs), who will in turn train the teacher trainers from 18 regional teacher training centers (RTTCs) and provincial teacher training centers and technical grade leaders (TGLs) and vice school principals in charge of teaching techniques from application and cooperation schools.

Before 2016, the teacher training department had sole authority to select the NCTs. VVOB simply requested the teacher training department to provide the names of NCTs to work with VVOB and the teacher training department could nominate anyone to be an NCT in their own network. So far, the NCTs often have been nominated among officials from teacher training department, primary education department, secondary education department or from PTTCs or RTTCs. The Teacher Training Department always nominated MoEYS officials who had never taught in the classroom and were not committed to fulfilling the requirement of the new jobs, so the participants complained about the quality of training. It is for this reason that since 2016 VVOB has been selecting the NCTs by themselves through a competitive process. The teacher training department simply facilitates the process, such as disclosing the information about the recruitment of NCTs. The selection is based on fair, transparent and competitive principles (i.e. submitting an application, compiling a shortlist and conducting interviews). The selected NCTs are diverse, including both officials from the central and national levels, like teacher training centers, and more qualified and committed than the previous NCTs.

NCTs are trained by the experts about thematic content of the trainings for “cascading” to the teachers. From 2016–2020, the training provided by VVOB focuses on mathematics, classroom management and leadership. The key focus of training is how to produce and use teaching aids in mathematics and the sciences rather than the content of the subjects. The training is also a form of learning. Often, the NCTs training covers the teaching method of mathematics and sciences and how to develop teaching aids. Materials development is provided by different stakeholders, such as experts, NCTs and teachers, who bring expertise from different perspectives and learn from each other throughout the process.

The advantage of the cascade model is that the approach can reach many participants in a short time and it is cost-effective. Although the cascade model is instrumental for upgrading the skills and knowledge of trainers, the model has a number of setbacks. The first setback is when the multiplication of the knowledge and skills to teachers after the ToT is not productive. Crucial information may be lost or misinterpreted at each step of the cascade process and those who receive the training may not relay the training to the next level. The second setback is that the model is more focused on skill and knowledge development than values in teaching and learning (Kennedy, 2005).

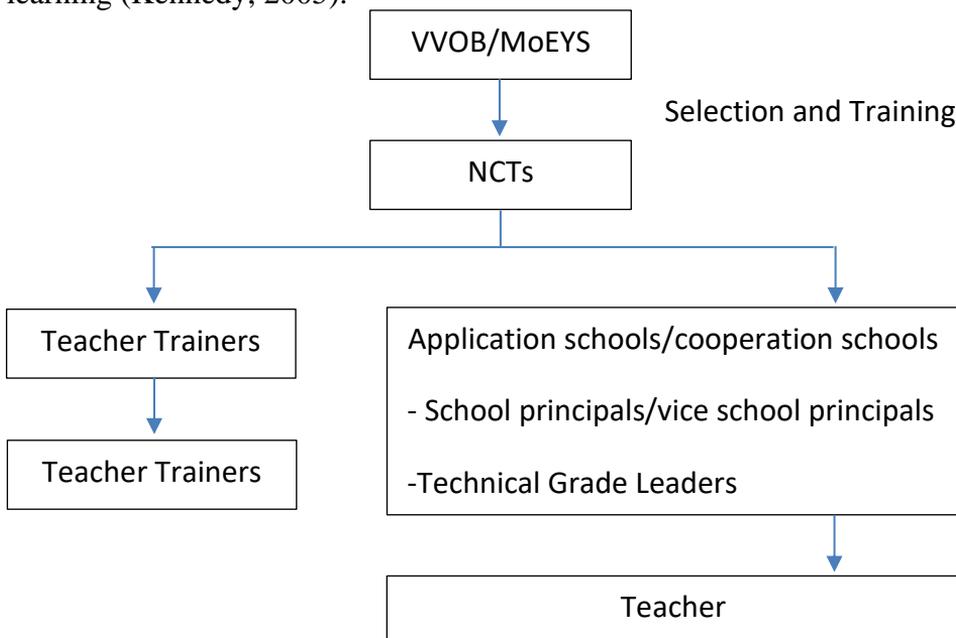


Figure 2: Cascade model of PD provided by VVOB

PD model at normal primary schools: Technical meetings (TMs)

The modalities of TMs

At school level, on-site PD is conducted under the form of technical meeting (TM), *Prochum Pachektes*. TMs occur at the school and cluster levels. The main objective of a TM is to provide regular PD and improve the relationships among the teachers. In the meeting, teachers are supposed to discuss any teaching issues, reflect on their teaching experiences and exchange ideas about teaching and learning. At the beginning of every academic year in October, the department of primary education of the MoEYS issues guidelines on each school's operation plan consisting of the regulations related to TMs, such as very brief information regarding the dates, the agenda of TMs and their incentives. These guidelines are then disseminated to PoE and DoE, who relay the information to primary schools. There are at least seven TMs to be conducted at each school per year and budget support is supplied by MoEYS.

Based on the timetable determined by the PoE, schools need to organize TMs on Thursdays at least seven times per year; however, the schools can hold them as often as twice a month. Teachers are offered 12,000 riels per TM they attend and a payment for refreshments is provided to the organizer. The purpose of a TM is to share ideas on teaching methods and content knowledge, including the best practices and difficulties in their teaching. In the TM, one teacher will teach, demonstrate or resolve educational issues to other teachers on a particular subject which is usually identified based on the class observation of the school director. During the TM, the school principal also shares relevant information, e.g., the guidelines from the national level.

TMs are also conducted at school cluster levels. The school cluster system was piloted in 1992 and then expanded to all provinces in 1995. Each school cluster is composed of five to six geographically proximal schools, of which one is a core school and the others are satellite schools. The cluster school system is a mechanism for coordinating central government support, strengthening school management, managing scarce school resources, increasing the capacity of local staff, and enhancing teaching and learning. The funds for school development are directly transferred to schools via clusters upon the submission of the cluster's plan to the MoEYS.

TMs always follow four main activities: 1) a teaching demonstration, 2) reflection and feedback, 3) policy dissemination, and 4) other issues related to teaching problems or student learning issues. The teaching demonstration is the core activity of the TM and the demonstration imitates teaching in a real class, with the teachers as the pupils and the demonstrating teacher playing the role of the teacher. Sometimes, real students attend the demonstrations. The demonstration takes 45 minutes. Demonstrations are an essential teaching method that can be used with both large and small groups to support teachers' skills at any grade. In the demonstration, teachers not only demonstrate learning concepts to other teachers, they also help to improve their own teaching strategies. In the class demonstration process, teachers always followed five steps: warming up the class, reviewing previous lessons, teaching new lessons, strengthening students' knowledge and providing homework. Teachers perceive these five steps as a student-centered approach to teaching. Further, recognizing that students face challenges with reading, writing and mathematics, the Khmer language and mathematics subjects were often selected for teaching demonstrations in TMs. After completing the class demonstration, teachers are allowed to provide comments, suggestions and evaluations to find strengths and weaknesses in the teaching process.

Some key issues of TM are as follows:

- **District Office of Education has very limited role in TM:** An DoE official said, "We come just to show our presence so that teachers and directors feel more warm support and if we have any new information we can disseminate it to them." A teacher said, "DOE sometimes gives feedback on wrong spellings, or to provide MOEYS guidelines or recommendations." DoE has very small technical and managerial roles in TMs.
- **There is no TM follow-up and monitoring:** Some teachers reported that after attending a TM they practice what they learned in the meeting and applied it to their students. They then reported their achievements in the next cluster meeting. E.g., a Deputy Director stated that, "A Grade 1 teacher had difficulty in classroom management, her students don't listen, so others give her suggestions that whenever they are noisy she should ask them to stand up and clap their hands, tell them stories or play some games, do anything that engages students." In the next meeting, she reported that the suggestions were effective. However, there

is no systematic follow-up on teachers to see if they have practiced what they learned in TMs.

Advantages of TMs are beneficial as below for teachers as following:

- Teachers can share and learn from each other about different teaching methods and apply these in classroom to suit their students' needs. A teacher said she shared the Early Grade Mathematics teaching method with other teachers in a cluster meeting. This method uses inquiry-based learning approach. She said, *"Some teachers did not see the advantages of the new method but when I explained it to them, they began to understand and think it is good. Technical meeting is a good chance for teachers who did not have chance to attend trainings to learn from others."* Some teachers mentioned how they got ideas from the cluster TMs and applied them in their own classroom. A teacher in grade 3 said she changed her methods of how she taught science, e.g., the subject related to foods. Instead of telling students the information, she posed questions to students to pique their curiosity. She asked, *"How many categories of food? Water lilies are in which food category?"* Before teaching, she copied color pictures and used real items (lily flowers) to show to students. She agreed that students learn better with teaching aids. Most teachers are happy to learn from peers and apply what they learn when they know the theories behind each method; e.g., IBL is designed to improve students' critical thinking and creativity.
- Teachers can also use TM demonstrations to strengthen their knowledge of how to produce effective lesson plans that are based on coherent steps and determine lesson objectives and how to achieve them. In addition to that, TMs act as a venue for teachers to come together and produce teaching aids or materials to help students better achieve learning objectives. Teachers can guide each other and exchange raw materials to produce teaching materials. One teacher said, *"Some teachers do not know how to use teaching aids or when to use them; some ended up not using them at all. Teaching with materials can engage students and make them happy in class. Students will not be absent often when they enjoy the class."*

- Teachers reported that their classroom management skills improved. They can learn from other teachers who are good at classroom management on how to deal with students who are misbehaving, loud, or disruptive during study time. They also learn how to motivate students in class and make learning fun as well as how to be a good teacher through observing the class demonstrations. Therefore, TMs are an important platform for teachers to share and exchange ideas and enhance their general pedagogical knowledge.

PD model at Angkor Ban Primary School, Kangmeas District, Kampong Cham Province

Angkor Ban Primary School consists of kindergarten and primary school levels. There are 11 classes and the average class size is 30. The school has 17 teachers, 13 of whom are female. The teacher capacity in the school varies. Most teachers are Cadre C official level which is the lowest level in Cambodian public function system and but only two are in Cadre B. Most of them are pursuing bachelor degree at the universities in the province. The school will launch a New Generation School (NGS) program in academic year 2018–2019, but at the time of fieldwork there were no teacher preparation programs for NGS.

The Angkor Ban Primary School has been supported by Save the Children for two development programs: the first one between 1998–2002, and second one was from August 2013 to now. The second project is called “I’m Learning.” Before selecting the school, they were going to support, Save the Children conducted three interviews with the schools and stakeholders.

The modalities of PD in Angkor Ban Primary Schools are:

- **Training:** To address the knowledge and skills gap of teachers and strengthen their capacity, teachers in Angkor Ban Primary School are provided with training on a regular basis. The school director claims that the NGO provides a lot of training every year, and all teachers are allowed to attend the training, including those teaching the kindergarten level. The training can take place either at school or at Kampong Cham PTTC and the trainers are from the PTTC. A training course lasts for two days per time and they are conducted a few times in the academic year. Teachers usually receive training on lesson planning, teaching methods, material creation, questioning methods and life skills.

- **Study visits:** Another form of PD in the school is study visits to other schools. The director mentioned these are eye-opening experiences for teachers and they can learn better by exposing them to the innovative environment directly. By joining study visits supported by Save the Children, teachers can learn from other schools' experiences and best practice. They can see other schools' improvement and teaching activities, then reflect and update their own knowledge. The study visit is two days in duration and is conducted twice a year at schools in the province or outside the province. All teachers have the opportunity to take part.
- **Exchange ideas/experience among all stakeholders:** Stakeholders in school include school leaders, teachers, students, parents and other members of the community. In addition to formal trainings and study visits, there are other dimensions that can influence teacher capacity that emerge from the relationship between teachers, teachers and parents, teachers and principals, and principals and the community. The director said, "*Save the Children, particularly this I'm Learning Project, helped our school to understand the key stakeholders' responsibilities to develop the school, especially the importance of community involvement. Before we didn't know that.*"
- **Follow-up after training:** Save the Children does follow-ups after each training session to see if the teachers have applied the knowledge learned. The director said that Save the Children follow up four times a year on average. They follow up either by conducting tests/assessments or classroom observations on teaching/learning activities to see the teaching methods used. The director reported that in the first year they followed up more often on every aspect, such as community involvement, school planning, school management and leadership and teacher capacity. However, in the last few years, they only follow up on subtle points such as teaching methods, teaching materials, questioning and classroom management.

After the follow-up, Save the Children reports the results to school management in the monthly meeting, in a meeting with all pilot schools, or at the Save the Children office. They provide feedback on the challenges and results, after which the school directors make plans and incorporate the feedback into school improvement plans or annual operational plan.

Mostly it is only the Save the Children that conducts the follow-ups, not the directors. The director said, *“We can’t follow up, we don’t have time, we have to do reports, budget and other subsector development, and also we don’t have experience.”*

- **Class observation:** The school director does not observe the classroom often but let the Save the Children fulfill this tasks. The school director said:

Our school used to have only seven classes and only one class per grade, thus teachers took classes and couldn’t be TGLs. School directors can’t observe classrooms often. We only collaborate with Save the Children and see the positive and weak points they report. We did some checking up to confirm if the conditions are like what reported and made plans to change shortly. If teachers don’t understand or can’t implement well, e.g., the new teaching methods that they have been taught, we help them direct or if there are more than 60% of teachers, we ask Save the Children to provide training to all.

- **Teacher evaluation:** A committee has been created to evaluate teachers to decide who to upgrade the salary scale every two years and solve other issues in school. The director said, *“Sometimes, PoE/DoE come and when we have not evaluated the teachers, they just ask us to give random names.”* PoE/DoE never come directly to overlook the committee. The committee mostly just has the name and director involves them to do tasks related to guiding teachers who lack discipline and are inactive (e.g., are they frequently late, absent or slow to submit tasks) and unable to keep up with others.

The school director reported that “the monitoring and evaluation of teachers and giving incentives to high performing teachers is the responsibility of PoE/DoE to evaluate and pick ‘good teachers,’ but they never come and inspect. In recent years, they come often because Save the Children are implementing the project and give a per diem to them to come”.

The school does not evaluate student or teacher performance. It is because there are assessments from Save the Children/ Kampuchea Action for Primary Education (KAPE) already for semester 1 and 2, and they have proper tools, standardized, and

expertise. The school only keeps record on passing rate, repetition rate, dropout rate for monthly and semester evaluations. The result of Save the Children's assessment is the formal result to show the stakeholders.

- **Project evaluation:** The 'I'm Learning' project seeks to provide concrete evidence that a holistic approach to school development can actually improve children's learning through implementing the quality learning environment framework (QLE). The QLE includes four dimensions: (1) Emotional and psychological protection, (2) physical protection, (3) student-centered teaching approach and active learning, (4) Parent–community participation

At the end of every academic year, KAPE conducted an annual project evaluation and providing recommendations for next year's implementation. The director said "It is good that Save the Children hire KAPE staff to evaluate their work and show the general results in public." After conducting a QLE assessment in each of the five intervention schools and every class, each school is evaluated and their results compared (e.g., each grade in all schools is compared).

The QLE assessment is conducted once a year and the results are displayed in general one-year achievement, especially on Khmer and mathematics. Schools can see other pilot schools' achievements and reflect. KAPE asked teachers to show commitment, and what plan they thought should be implemented next. They showed the results and discussed them; e.g., why the school received a particular result – was it due to a shortage of teachers (double shift), shortage of classrooms or having mostly contract teachers? Or is it that students come from other schools a lot and they have poor reading skills?

After one year of being part of the "I'm Learning" project, the first QLE result showed a high achievement in Khmer and low in mathematics. This was a wake-up call for the teachers. They reflected on their teaching methods and their weakness. The school leader raised a plan to Save the Children to train teachers, then the organization invited PTTC trainers specialized in particular areas to provide training, either inclusive training at the PTTC or school-based training. School-based training is

conducted if the problem is only at one school, while inclusive training is done if all intervention schools have the same problems. The training provided based on each grade.

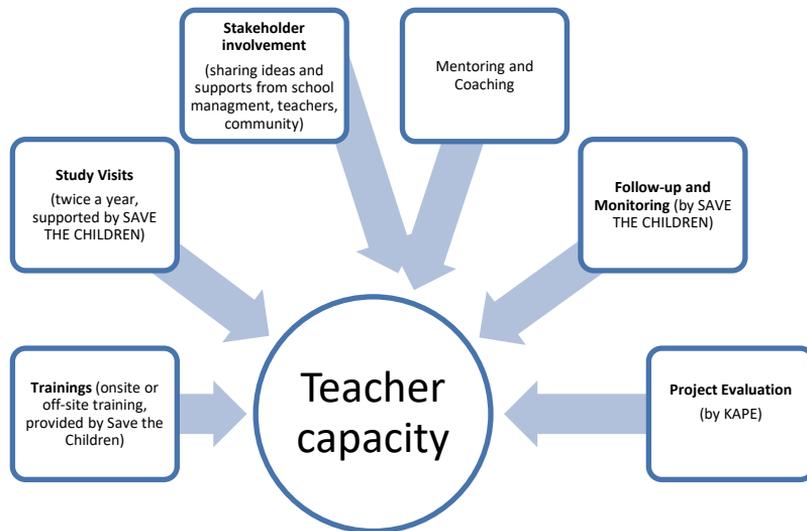


Figure 2: PD modality used in Angkor Ban Primary School supported by NGOs

Implication from Angkor Ban Primary School

The PD supported by Save the Children is more effective than other PDs because the training is provided to all of the teachers in the school and the schedule is flexible to the needs of teachers. One director said that "*previously Save the Children projects use the cascade model (ToT). E.g., if there is training on community, they select only the head of the school; for school management training they select only the director; for teacher training they select only TGLs. They don't have time to share, and teachers don't listen.*" He continued, "*In our culture, teachers don't listen to those who are close to them*". Save the Children invite all teachers from kindergarten to Grade 6 to take part in all training sessions; e.g., even though project standard reading is supposed to be only for Grade 3, the organization invited all teachers in the school to learn the new methods and make adjustments based on their grades." The trainings are mostly scheduled during vacations and study visits are held on weekends or holidays.

The community's participation: Strong community participation is one of the most important success factors of effective teaching/learning in Angkor Ban primary. The school director holds meetings with the community to establish a classroom committee in order to show the objectives of the school, how school should be running, and ask the community for help. The community can help with gathering school-aged children to enroll in the school. The school management can also show the school's improvement plan and ask for financial assistance in whatever form the community can contribute. The director said, *"we asked parents to have critical thinking and analyze the importance of their investment on their children, in opposed to other expenses."* Teacher and parents also have the opportunity to meet up and talk about their child's study and the school's facilities. The director said, *"previously, the community didn't care about student attendance and the availability of infrastructure/facilities in the school, but then we invited parents to classrooms, so they can see how their children are taught"*. Parents more freely give suggestions to schools on the academic improvement of their children. They have become more open to teachers and teachers can give feedback.

Angkor Ban School depends on NGO training, assessment and teacher capacity-building. The school lacks strong school leadership. The prominent form of PD is training and study visits. However, there seem to lack of focus on collaboration among teachers and among schools in the pilot projects. There is no form of collaboration between teachers, except a few sharing sessions in the monthly meeting, which is not flexibly scheduled. Teacher capacity-building agenda is not a priority. The director did not remember how many training opportunities had been provided to teachers and never assessed the teachers' performance. The school mostly focuses on training as the only crucial tool to build teacher capacity and provides few chances for teachers to reflect on their teaching practices with peers. An external change facilitator who can bridge the gap between new research/innovative methods and classroom practice is needed for PLC to take place and function well. In this example, Save the Children could have been the facilitator but they did not focus on peer collaboration.

Teacher PD at New Generation Schools

Upgrading schools to New Generation Schools (NGSs) is another step of the Child Friendly School (CFS) program to promote education in Cambodia. The Policy Guidelines for New Generation Schools (2016) policy provides guidance to educators and administrators at all levels

regarding the implementation of NGSs. The establishment of NGSs is an official policy goal of MoEYS. The establishment of NGSs is seen as a continuation of CFS developments. Such schools receive greater autonomy from the state to stimulate educational innovation. With this type of school, MoEYS intends to create a new development track within the public education system that will lead to the creation of autonomous public schools, which receive high investment linked to new standards of accountability and governance as well as teaching the professional standards required for 21st century learning.

The vision of NGSs is that they will lead to the emergence of a new administrative framework that ensures the necessary conditions needed for successful educational investment through the creation of autonomous public schools governed by strict rule if accountability. The concept of NGS is similar to charter school in other countries, where the school is a public school but the management, learning, teaching and financing are different from public schools. The NGS has separate policy to run endorsed by MoEYS in 2016. Currently, there are 10 NGS in Cambodia. While the staff and funding are provided by the government, Kampuchea Action for Primary Education (KAPE) provides day-to-day support in collaboration with school's vice-principal and/or principal.

The NGS employs teachers who are either current government officials or recent graduates from university. The teachers go through a rigorous employment process including screening applications and taking a teaching test and oral interview. If successful, the candidate goes through intensive capacity-building before becoming a teacher at an NGS.

The quality of NGS teachers is shaped by four major factors (as shown in Figure 4): intensive training for two weeks by KAPE resources employees, a continuous professional development plan (PD) developed by the teacher, mentoring and coaching (senior lectures), and being part of a professional learning community (PLC).

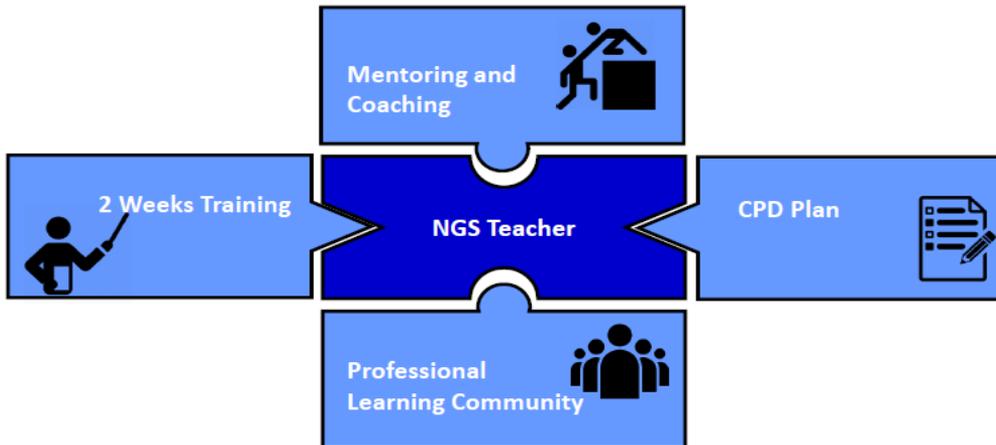


Figure 4: PD modality used in New Generation Schools

The two-week intensive training is designed to equip teachers with teaching methods, leadership, and some other critical skills so that teachers are ready to teach in an NGS.

The PD plan is developed by the teacher. Normally, an NGS requires each teacher to conduct a self-evaluation. Using the results from this evaluation, the teacher notes self-improvement areas, e.g., content knowledge and/or teaching methods. KAPE responds to the needs of each teacher through one-on-one coaching and/or group seminars.

Mentoring and coaching are the activities utilized to improve the quality of teachers when the self-evaluation is not enough. A mentor visits the classroom while the teacher is teaching. This makes the teacher highly accountable. If there are any shortcomings identified by the mentor, s/he will make recommendations for improvement.

The PLC is also plays a very significant role in promoting teaching and learning in NGS. PLC is the advanced version of the lesson study and/or class demonstrations used by other teachers. PLC requires teachers collect information on each student, especially their learning goal(s), and tries to prepare a teaching plans that meets those goals. The group of teachers from the same discipline at the school will study the students' needs and then prepare a teaching plan (DuFour & Eaker, 2009). Teachers will exchange ideas and the progress of their students' achievement. In some cases, parents were invited to the school to discuss their child's study goal and invited to participate in the teaching activities to ensure the goals

materialize. It should be noted that while lesson study and/or class demonstrations are focused on teacher learning, PLC is focused on student benefits.

In short, the success of PD in NGS is associated with two external factors and two internal factors. The external factors are that all teachers are being watched, either through their self-evaluation or through mentoring systems. The mentoring and evaluation work as the driving force for teachers to ensure that they perform well. Another external factor is that they are highly valued by students and parents. The engagement of students at school and the study results have promoted the value of teachers and means they are appreciated by parents. During school visits by parents, teachers have a feeling of connection with the community. For the internal factors, the teacher has career path, meaning that if they perform well, there will be incentives such as becoming a mentor and/or involved with other activities to promote teaching and learning in NGS.

Finally, teachers at NGSs are always updating and upgrading their capacity due to their community and/or school environment. Like-minded teachers are working in NGSs, which means that they reinforce each other in promoting a learning environment.

The INSET model conducted in NGSs has some implications for general public schools, mainly in relation to the PLC and mentoring systems. The NGS model can be repeated in general public schools if teacher career pathways are implemented with high-quality assessments of teacher's performance.

Discussions

This study has found different models of teacher PD, each of which was designed to meet the needs of each setting. Each case has generated different results and also has its own weaknesses and constraints. Although we have not deeply explored the effectiveness of teacher PD of the four case studies, especially the linkage of each model to the student achievement, observations can be made based on the above cases. To maximize the outcomes from PD, the policy-makers and PD program developers need to change the current PD approaches and practices. Learning from the four cases, there are some recommendations to be made.

Design the PD with clear PD objectives

The goals of PD as well as the school's conditions and constraints determine which model of PD is the most suitable for a given setting and

school. There is a need to identify which teacher competencies and practices need to improve within the framework of teacher professional standards. Each type of competency and practice requires either a different approach or a mixed approach; e.g., the cascade training model provided by VVOB focuses on science and mathematics in terms of producing and using practical and simple material in the teaching and learning of science and mathematics. However, the cascade model often emphasizes content knowledge rather than the value and the attitude of teachers.

The objectives of teacher PD must be linked to the students' learning outcomes. The learning outcome is improved if only the teacher's PD brings about change to the teachers and thus the practices in the classroom. It is important that needs assessments are done to assess teachers' training needs. From there, the content of the training must be prepared. For instance, the content of the training for unqualified teachers must not be complex and beyond the teacher's capacity, otherwise it is unlikely to be implemented in the classroom.

The needs assessment will make PD feasible and improve the implementation of PD in the classroom. However, the study found that in general needs assessments are either not conducted properly or not by the PD providers and the normal schools. In the four types of schools visited, the school supported by Save the Children and the NGS conduct the needs assessments before providing the training to teachers. The needs assessments in these schools is conducted in a form of an evaluation early in the academic year.

Fostering coherence of the content and the process of teacher PD

A PD activity is more likely to be effective in improving teachers' knowledge and skills if it forms a coherent part of a wider set of opportunities providing teacher learning and development. In this sense, teachers shall be guided about what to teach and how to teach from different sources such as pre-service education, in-service education, textbooks, teacher professional standards in the national curriculum framework and assessment. These sources must be coherent so that they can improve teaching practice.

Teacher PD is coherent if it builds on what teachers have already learned, the content and pedagogical knowledge is aligned with national standards and assessments and it creates professional communication with other teachers who are of the same status (Abbott & Snidal, 1998). The

PD of the school supported by Save the Children follows this pattern. The teacher PD in this school uses mentoring and coaching by facilitators (the staff from Save the Children) on one particular subject at a time and then the next session is connected to the previous session. Teachers are mentored and coached based on the concept of appreciative inquiry and active learning (i.e. positive practices and positive situations of teachers) in teaching and learning. The PD in this school is aligned with the test standard results. The test standard is designed based on the curriculum detail and textbooks. The test results are used to design the content of the PD.

PD must encourage the development of a collegial network among teachers who are engaged in similar ways of teaching. An ongoing discussion among teachers who confront similar issues can facilitate change by encouraging the sharing of solutions to problems. By sharing methods, discussing written work, and reflecting on problems and solutions, teachers may foster a better understanding of the goals of student learning that bring about change in teaching. Technical meetings in normal schools are aligned with this track and, if it is properly conducted, it will contribute to the students' learning outcomes.

Coherence of all actors involved in PD

There is a need for the technical departments of MoEYS to work together in a coherent way from the planning to the implementation of PD programs. The PoE should be more involved in training rather than administrative tasks. With support from MoEYS and PoE, a mechanism for supporting, implementing and monitoring PD should be created. The mechanism should allow PoE to be actively involved in training, funding, data-collection and analysis to ensure the alignment between its inspectors, DTMTs, clusters, teacher training centers and schools.

At the district level, the regular meeting between DoE and schools could be a vehicle for INSET expansion as well as exchanging best practices from one school to another. We have identified different INSET models being practiced in Cambodia. Each model has its strengths and weaknesses depending on the school context. Therefore, when school principals meet each other face-to-face on in their monthly meeting, they should discuss and learned from each other. This meeting could also be a platform to update all schools on the progress of PLC and/or other INSET models being used at schools with district DTMT officials. If this is done, it is very likely that the culture of INSET at school would be amplified. It

should be noted that each school principal has different capacity to activate INSET at their school. The exchange of best practices of INSET at school during the meeting could be a major venue for them to take away and implement in their own schools. A unit whose role is to monitor and train DTMTs should be created to provide more systematic capacity-building to DTMTs with regards the PD principles, practices, PD needs assessments and monitoring and evaluation.

School leadership and PD

School directors play an important role in facilitating teachers' professional and personal growth responding to their needs and learners' needs. School directors are role models for their staff when they engage in PD. However, they also need to be trained to acquire new knowledge and skills to lead teacher development activities.

Organization of PD

Normal schools are obliged to hold technical meetings only once a month and for only seven months in the year. If schools only meet this minimum requirement, teachers will not be able to learn effectively. There should be a regular technical meeting with class demonstrations every fortnight so that it becomes easier to upgrade teacher capacity. It should be noted that if PD is conducted outside the school cluster, it is highly unlikely that teachers will attend. The major reasons for this is that every teacher is very busy with 1) teaching duties at the public school, 2) providing services as a private tutor and/or teaching in private school, and 3) taking care of their family. They also may not prioritize PD if it is not school based. One way to address this issue would be the provision of PD at service providers close to their schools, such as at RTTCs or TECs.

Evaluation

One of the significant weakness of INSET training observed in this study is the lack of follow-up and support when teachers come to implement the new ideas/methods in their own classrooms; that is, to translate professional learning into practice. Therefore, follow-up and evaluation should be mandatory.

The follow-up school visits at the end of the trainings or TMs enabled a useful evaluation of the training and highlighted other training needs, as in the case of Angkor Ban Primary School. The use of lesson observations within the follow-up and needs assessment and evaluation stages were crucial. These observations provided invaluable support to the teachers,

highlighting their needs, and enabled an assessment of implementation that was not accessible using any other methods.

Impacts of PD on teachers

Effective teacher PD leads to changes in classroom practice and ultimately improves students' learning outcomes. In the primary school context, it is particularly important to improve students' literacy and numeracy. After engaging in various forms of PD, teachers could identify positives changes in their classroom; e.g., being more student-centered and including more activity-based lessons in the classroom. A teacher reported that after students have completed all the games in mathematics class they learn more and they are excited to know more about mathematics. This method of teaching is more fun and less boring for the students. They are better engaged and developed more positive attitudes towards their learning.

Recommendations and Conclusion

Learning from the four PD cases, there are some recommendations to be made. These are outlined in the following sub-sections.

PD needs assessments

To be effective, PD must address the needs of teachers and students. The decisions regarding PD at school should be made after genuine consultation with teachers and school directors. The mechanism should be the school director or the school principals in the cluster school conduct a needs assessment of teachers and create a handbook of skills, content knowledge and pedagogical knowledge so that the schools can arrange the training by either using their school resources and/or inviting ToT from DTMT, PoE, TEC and/or TTD. School directors and teachers should be trained and empowered to assess the specific needs of teachers and school.

Mixing modes of the teacher PD

Choosing the locus of intervention and the proper mode for PD depends on the objectives of the program and at the context of given schools. Mixing the four models (cascading model, TMs, mentoring and coaching and PLC) in a coherent way can work well given the current context of weak school governance. According to the practices in most countries in the world, the most effective method of PD combines on and off-site activity and self-development with external assistance. To form a

coherent PD program from the four models, each PD model should be fixed.

It is recognized that the TM is one form of a well-established PD at the school and cluster levels. To make it function better, some rules and practices should be put in place such as strict attendance, meaningful discussion during feedback sessions, imposing questions or problems for teachers to work and research on by using data in their own schools to solve particular problems and good facilitative skills for school principals and TGLs. More importantly, as teaching demonstrations in technical meetings focus on the mastery of topics, a more effective way is to arrange as lesson study.

Lesson study has long been used as form of PD activity in Japan and is increasingly used in the United States and other countries. Lesson study is a type of classroom research in which a few teachers investigate teaching and learning in the context of an actual single class lesson. After each lesson study session, teachers document their work in a report that describes the lesson they designed, explains how the lesson worked and what they have learnt about teaching and learning from the lesson study experience. The lesson study is characterized as collective learning that is classroom-situated, context-based, learner-focused, improvement-oriented and teacher-owned. These features of lesson study match the elements or principles of an effective PD.

There is a need to scale up the practices of coaching and mentoring. The role of the TGL in providing support to novice teachers and making use of expertise from TEC trainers should be reinforced. Teachers with more expertise should mentor those with less expertise. This will link to the implementation of the teacher career pathway framework. The highest levels with the teacher pathways can serve as a core group of experts who will develop the PD for all teachers.

TEC as PD service providers

In order to ensure the effective and efficient operation and management of in-service training programs, MoEYS should consider providing autonomy to the two TECs and other PTTCs and RTTCs that will upgrade themselves to TECs after 2020 based on the Teacher Education Provider Standards in making decisions on all aspects of managing the teacher education programs as a regular higher education institution. MoEYS at the central level should only regulate, monitor and evaluate the programs to make sure that TECs will always produce

accountable results that comply with the regulations and standards stipulated by national policy. The autonomy granted to TECs with full financial and professional support will allow TECs to attract and retain the brightest candidates in teacher education, as stipulated in the teaching policy documents. TECs and schools are the closest in operation and management; therefore, they can learn and support one other.

TECs should provide a number of PD courses that address the specific needs of teachers, learners and the schools based on a needs assessment. PD policy states that teachers can have at least 100 hours of PD per year supported by the state. The teachers can register for the PD courses at TECs.

Creation of a professional learning community

Providing teacher PD in the form of a “community of learning” is another option. In a community of learning, teachers can identify their needs, the community’s needs, do the planning and implementation, support and assess each other, and provide feedback. Through this process, the teachers bring the real-life experience to the learning in the classroom and improve the learning outcomes of the student. The learning community improves not only the content and pedagogical knowledge of teachers but also fosters team-building and the sharing of knowledge and common values in their work lives.

Learning communities of teachers can take various forms, such as teacher groups for similar subject areas and teachers across subject areas learning with and from each other as communities of learners. MoEYS needs to provide supports to schools in the implementation of communities of teachers.

PD linked to career growth and incentives

As MoEYS considers changing its approach to PD, teacher pathways for career advancement and recognition play important role in this change process. Improving the conditions teachers work under and knowing that their PD engagement is related to their career success will have a great impact on their levels of PD engagement. The PD program needs to be developed in accordance with each teacher’s career structure. The TCP framework was adopted but there is no clear guideline on the implementation of TCP. TCPs are interlinked with their remuneration and benefits. The career and proficiency level achieved according to the TCP will have a direct impact on the income of teachers.

The implementation of TCP will require the creation of a service record for teachers (a career passport) that centers on a professional credit system including confirmed information about PD engagement and other professional achievements. Teachers will have their individual records and can be awarded with the appropriate career level.

Upon review of the concept and practice of effective PD for teachers, it is suggested that policy-makers, practitioners and academics know what constitutes a good PD program. Nevertheless, the issue of how to effectively implement PD remains a significant challenge. To begin to address this question, four PD cases are presented and analyzed. The cases show that firstly, the right approach to PD depends on meeting local needs and conditions and the objectives of the PD program. Secondly, to maximize the outcomes from PD, policy-makers and PD program developers need to change the current PD approaches and practices. Rather than only using dissemination or the cascade approach, PD should be conducted at the school level under various format as a social process and in coherent and sustained ways that transform teachers into active learners and bring about both professional and personal growth. School and cluster-based PD is the prominent model used for primary school teachers in Cambodia but as primary schools in Cambodia have weak governance, this is often not effective. The mixing of PD modes may be an effective solution to that problem. Lastly, linking PD to career growth and incentives under the teacher career pathways framework is a driving factor for teachers to develop their professional capacity. This is important as PD will not only improve student learning outcomes but also the teachers' professional and personal growth.

Annex 1: Comparison of PD paradigms in the four studied schools

	Cascade model	Coaching and mentoring	Demonstration class in normal schools through cluster system	Professional learning community
Objective	<p>Transferring new knowledge, skills</p> <p>Knowledge or skill-based</p>	<ul style="list-style-type: none"> - Induction of new teacher - Strengthen practices of experienced teachers 	<ul style="list-style-type: none"> - Exchange ideas/practices/resource among schools in cluster 	<ul style="list-style-type: none"> - Creation of new knowledge - Exchange ideas and practice within school - Solving school/ classroom problems by conducting action research

<p>Sustainability</p>	<p>One-shot workshop approaches</p>	<ul style="list-style-type: none"> - Sustained and extensive opportunities to develop practices - Depends on the one-to-one relationship between two teachers 	<p>Properly run, sustained and extensive opportunities to develop practices.</p>	<p>Sustained and extensive opportunities to develop practices</p>
<p>Content</p>	<p>Teachers are trained to follow patterns. Focus on coherence and standardization</p>	<p>Teachers are trained to be empowered professional.</p> <ul style="list-style-type: none"> - Social and cultural norms within institution - Interrogation of practices 	<p>Teachers are trained to follow patterns. The content is too routine.</p>	<p>Teachers are trained to be empowered professional.</p>
<p>Venue</p>	<p>Offsite</p>	<p>Within school</p>	<p>Cluster level</p>	<p>Within school</p>

Organization of PD	Once a year on average	Regularly	Once a month	Weekly
Type of learning	Results in passive learning	Results in active and participatory learning.	Results in passive learning	Results in active if continuously questioning and reflecting practices; engaging in action research Depending on the role played by the individual as a member of the wider team, could be either a positive and proactive or a passive experience.
Power	Centralized workshops or programs	School-based model in which all teachers participate One-to-one relationship	School-based model in which all teachers participate	Subject-based or level based or cross-disciplinary teachers (more than two people per group). Generate school-based research, shifting balance of power towards teachers themselves.
Delivery	Expert driven	Teacher facilitated	Teacher facilitated	Teacher facilitated

<p>Relevance & Responsiveness</p>	<p>Programs do not address the needs of teachers and schools. Lack of connection to classroom context.</p>	<p>Program address the need of teachers and schools</p>	<p>The content rarely discusses on classroom issues.</p>	<p>Carry out collaborative action-based research, the problem of relevance will be addressed.</p>
<p>Evaluation</p>	<p>Program evaluation (survey)</p>	<p>Self-evaluation; mentor evaluation</p>	<p>None</p>	<p>Self-evaluation and peer evaluation</p>
<p>Impact</p>	<p>Improve content knowledge/ pedagogical content knowledge</p>	<p>Improve self-reflection and practices</p>	<p>Improve pedagogical knowledge</p>	<p>Improve critical thinking, questioning, reflection, communication, change classroom practices</p>

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Article

Pre-service Teacher Training Program at Provincial Teacher Training Centers in Cambodia: A Case Study in Four Provinces

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Abstract

This research examines how MoEYS can address the challenges faced by the PTTCs. The researchers have collected data from different stakeholders including those involved with teacher training college (TTC) development. These sources include the TTC directors and Teacher Training Department (TTD) officials as well as non-government organizations (NGOs) who are working in the education sector. Some information was also obtained from recent graduates from various TTCs throughout Cambodia through semi-structured focus group discussions. The research methods which were utilized to generate this data included focus group discussions with various groups of teacher trainers, teacher trainees and TTC management, key information interviews, and field observations during June to August 2018. The research has three major findings. First, provisional teacher training college (PTTC) management is relatively weak in regard to the smooth operations of teacher training programs. The PTTC board does not currently have the power to recruit new staff or dismiss low-performing ones. Some directors strongly request the authority to manage staff as they see fit in order to deliver a high standard of teacher training. It appears that the management team has lower capacity to lead these institutions due to the lack of a clear strategic plan and general directions designed by MoEYS. Secondly, teacher

trainers face three major issues: 1) limited capacity in terms of content knowledge, as in 21st century teaching and learning, and ICT skills to be able to update and upgrade their capacity, 2) conducting research projects for the sake of improving teaching and learning at TTCs, and 3) the mentoring of recent graduate student-teachers to ensure their competence.

Key Words: Teacher training, 21st century teaching and learning, Cambodia education, Inquiry-based teaching, teacher trainee, curriculum.

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Introduction

The workforce of the 21st century requires a particular set of knowledge and skills. Hang-Chuon (2017, p. 6) states that, ‘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’. He notes that the children who will soon make up the workforce must acquire cognitive and non-cognitive skills while they are at school. To prepare the workforce for 21st century employment – that is, employment in the fourth industrial revolution – the education sector must be well prepared, especially in the teaching and learning of pupils.

In recent years, the Cambodian government has made a consistent effort to improve teacher trainees and teachers, there is evidence showing that the quality of the teacher training program (approaches and materials) has yet to improve at any of the teacher training centers in Cambodia, including at the National Institute of Education (NIE International, 2017; Phin, 2014; Tandon & Fukao, 2015). A study by Phin (2014) found that some teachers have not had any pedagogical training and that the in-service training did not address the needs of teachers. A study by Tandon and Fukao (2015) also indicated that teacher preparation (pre-service) did not allow the trainee to master the content and that they lacked exposure to student-centered pedagogical environments. The authors also found that teachers lacked peer-to-peer best-practice sharing. Williams *et al.* (2016) argued that teacher trainees in Cambodia received more information on subject content than psychological and pedagogical training. The authors

found that only 82 percent of student teachers who plan to teach for rest of their careers thought that they were adequately prepared to become a teacher. Being aware of the low quality of teacher trainees, teacher education has been prioritized in the teacher reform plan by the MoEYS, as stated in the Teacher Policy elaborated in Teacher Policy Action Plan (MoEYS, 2013, 2015). Among the aims stated in the Teacher Policy are ensuing the high quality of pre-service teacher training, especially addressing the shortcomings previously stated.

Because the government is promoting the quality of education, fewer teachers are enrolling/existing teachers are stopping teachers or is the lack of teachers a problem that exists alongside the issue of quality. For example, in 2002 there were only 48,474 teachers, more than 10,000 teachers short of the 58,898 teachers needed in the country (Duthilleul, 2005). As a result, some teachers worked two shifts, combined grades, and hired contracted teachers (Duthilleul, 2005; Geeves & Bredenberg, 2004). Another study by the World Bank Group in 2008 found there was an insufficient teaching force in rural areas and a teacher surplus in urban areas. Overall, demand of teacher in 2008 was about 30 percent in secondary school teachers (Benveniste, Marshall, & Araujo, 2008). The lack of a teaching force mainly in rural areas continued until 2011 (Tandon & Fukao, 2015). Given these findings, we conclude that Cambodia has failed to attract enough students to become teachers.

So far, we have identified four major premises that complicate the issues of teachers in Cambodia: 1) insufficient teaching forces in both quantity and quality (with not enough teachers overall and low-performing teacher graduates joining the workforce); 2) teacher training institutions failing to provide enough content knowledge and pedagogical content knowledge; 3) the teaching and learning in Cambodia still practicing a teacher-centered approach (knowledge transferred), which does not meet the teaching and learning best practices” or “which is not consistent with current teaching and learning standards practiced in other parts of the world; and 4) Cambodia needing to provide its citizens with the skills and knowledge to work in the fourth industrial world.

Cambodian Teacher Training Center Context

Currently, there are different types of teacher education institutions in Cambodia depending on the levels of teaching: pre-school teaching is studied in the Phnom Penh Preschool Teacher Training Center (PSTTC), primary teaching is studied in a Provincial Teacher Training Center

(PTTC), lower secondary teaching is studied in a Regional Teacher Training Center (RTTC), and upper secondary school teachers study at the National Institution of Education (NIE). It should be noted that there are one preschool TTC, 18 PTTCs, and six RTTCs in Cambodia. Four teacher training centers – the Battambang and Phnom Penh PTTCs and RTTCs – combined to become the Teacher Education College (TEC) in 2018 in response to the reform suggested in the Teacher Policy Action Plan (TPAP). This makes another inclusive type of teacher education. The aims of having a TEC is that teacher education will be based on 12 years of general education and four years of teacher education; thus, teacher trainees will become teachers without going through the NIE (Table 1).

Table 1: Teacher Education in Cambodia for General Education

Teacher Institution	Level of Education	Years of Training	Teaching Level	Salary Scale
PSTTC	12	1	Pre-school	C
PTTC	12	2	Primary School	C
RTTC	12	2	Lower Secondary	B
NIE	BA	1	Upper Secondary	A
TEC	12	4	Any	A

There is various anecdotal evidence about teachers in Cambodia, ranging from the entry to pre-service education to providing educational services to children. Regarding the entrance to PTTC, it was reported the lowest performing upper secondary school graduates would choose to study at a teacher training center (TTC) as their last option. In the past, PTTCs admitted students who finished Grade 7 and provided training so they could become a teacher. The teacher training was of the following durations: one year between 1983–98 (known as 7+1), one year between 1988–90 (known as 8+1 because [explain the change to 8 from 7]), for two years between 1990–94 (known as 8+2), for two years between 1994–1998 (known as 11+2 [explain the change to 11 from 8]), and from 1997 to present two years (known as 12+2 [explain the change to 11 from 12]). Between 1997 and 2012, students who failed the BAC II exam (grade 12 exam) could also sit the PTTC exam and became teachers if they passed. The requirements to obtain a teacher qualification are increasing (Table 1)

and that it will be the same qualification if the new reform is adopted by MoEYS (Dy, 2017; MoEYS, 2015). Based on Table 2, RTTC and PTTC have been recruiting the same batch of students since 1994 which mean that students would sit for RTTC exam first and if they failed, they would take another exam at PTTC. This illustrates that lower performing students could easily become primary school teachers, which is not positive if the aim is to enhance the quality of education, as illustrated in Figure 1.

Table 2: Level of education requirement to be admitted to a TTC in Cambodia

Year	Primary	Lower Secondary	Upper Secondary
1983 to 1987	7 + 1 (4+1)	8 + 3	10 + 3
1988 to 1990	8 + 1 (5+3)	8 + 3	10 + 4
1991 to 1993	8 + 2 (5+3)	11 + 2	10 + 4
1994 to 2014	11 + 2 (9+2)	11 + 2	BA + 1
2015 to present	12 + 2	12 + 2	BA + 1
New reform*	12 + 4	12 + 4	12 + 4

Note: Number in parentheses indicate the requirement of admission for indigenous teacher trainees

Research suggests that a teaching career is often not attractive for high-performing graduates. A study by the World Bank found that Cambodia TTC normally received applicants with grade E and D about 85 percent (Tandon & Fukao, 2015) and that applicants who failed Grade 12 were also allowed to sit for an exam for PTTC admittance; however, the latter practice was stopped in 2015. It should be noted that in 2015 the government exempted grade 12 graduates with a grade C and above score to do the entrance exam to study at TTC, yet the exemption did not attract any grade A students to join the teaching force and the exemption was cancelled in the following year.

While there are many reasons for not having high-performing graduates join the teaching force, the most cited factor is low salary. It has been found that in Cambodia teaching career received a salary that was 60 percent less than other professional careers with the same level of

education (Tandon & Fukao, 2015). To address this issue, the Cambodian government has been increasing teachers' salary so that now even the Level C salary scale of teachers is more or less equivalent to other professions with a similar level of education. Another interesting fact is that there are many applicants who applied for teaching career and less than 5% of total applicants were admitted to TTC during the past few years.

While the quality of student teacher graduates has historically been poor as a teaching career has not been very attractive among BAC II graduates, there are other issues in Cambodia's teaching system, TTC is riddled with low performance in terms of infrastructure, teacher trainers, and management. The World Bank found that TTC teacher trainers were under-satisfied qualified as trainers and could not deliver content knowledge to students (Tandon & Fukao, 2015). Realizing the inadequate performance of TTCs, the MoEYS issued the Teacher Education Provider Standards (TEPS) in 2016. The Standards provide criteria so that higher institutions could prepare themselves to serve as teacher education institutions if they gained the Certificate of Institutional Accreditation from the Accreditation Committee of Cambodia. By 2019, there are two Teacher Education Colleges (TEC) in Phnom Penh and Battambang.

Overview of quality of education in Cambodia

The quality of primary education in Cambodia remains a concern even though most of the primary school teachers in the past five years were better trained and better paid. According to the MoEYS-EMIS 2016–2017, primary education completion rate was almost 80 percent. Of those 80 percent, 85 percent managed to move up to Grade 7 in the new school year of 2017–2018. This demonstrates the efficiency and effectiveness of the education system in Cambodia, as it was able to provide a quality education so that these students could complete their nine-year basic education, as enshrined in the Constitution. However, it is worth asking whether a shortage of lower secondary schools and classes in their neighborhood or the students and/or parents not valuing staying longer in the school system after primary education contributed to students not continuing their education past the primary states.

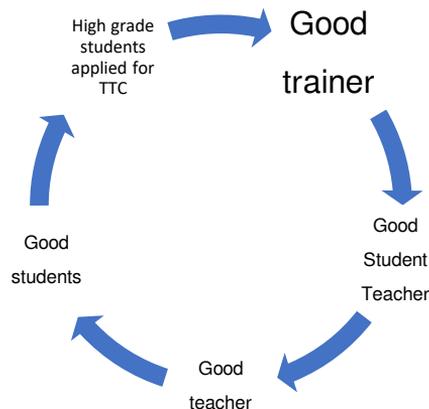
Early school life in the primary education sub-sector, from Grades 1 to 6, determines the journey of each student toward their further learning. If they have not been educated well from the beginning of their first day at school, they tend to lose impetus to learn or will not be able to do well

after primary level of their schooling. The first three years of each student's educational life is important to enhance their basic understanding of the educational environment and to develop socialization skills and the motivation to learn and live outside their family. The first teacher they meet has tremendous impact on their school life, hence well trained and committed teachers in primary schools are extremely important people who will have long impact on their students' educational path (as illustrated in Figure 1).

Primary school teachers should be well trained and supported after they are placed in schools. Support systems in the form of improved economic status, professional development and school-based support from their senior colleagues at school are important to ensure the quality of the service that they will offer. In school, the teachers and school principals are responsible for ensuring students know how to learn and learn well.

Every student wants to have good teachers and attend a good school. A successful school system relies heavily on quality of teachers and school principals, with guiding support from the policy-makers who understand school operations and issues. Building a good school culture of teamwork, Green and Clean will enable the teachers and students to respect each other and be molded by their surroundings. However, over 50 percent of the teaching staff currently working in rural areas only hold a lower secondary certificate and below. It is unfair for the students in rural areas who are taught by teachers who are poorly trained or having a lesser understanding of subjects and methods than their urban counterparts.

Figure 1: The cycle of potential quality of education



Sources: by Authors

Century teaching and learning

In the 21st century, teachers in the classroom are no longer the main source of knowledge. There is a tremendous amount of information outside the classroom that students can easily access. The role of the teacher is no longer to simply impart knowledge to students but to be the facilitator who helps them learn to analyze and evaluate in a way that fosters their creativity, critical thinking, collaboration and communication skills. The heart of 21st century learning is student-centric (student-centered). The teachers' role is to help students, validate, synthesize information, communicate information, collaborate with peers and problem-solve. In the 21st century, the classroom must be as engaging, responsive, and dynamic as the world around us

There are different organizations that prepare students for the 21st century. For example, Partnership for 21st Century Skills (2010) advocates for 21st century teaching and learning for every student. The framework identifies life and career skills, learning and innovation skills and information and media and technologies skills. These skills should be at the forefront as we plan instructional strategies.

Based on Partnership for 21st Century Skills (P21) standards, students must master both content and skills as part of their education. So, teacher graduates should be able to model and teach mastery of academic subjects and possess interdisciplinary understanding along with other 21st century skills. To meet these requirements, teacher graduates are expected to be environmentally literate, health literate, financially literate, civically engaged, and globally competent. They should be flexible, responsible, and adaptable. P21 also outlines other skills such as the 3Rs and 4Cs. The 3Rs – reading, writing, and arithmetic – used to be the most important skills to have; however, in today's world, if we only know how to read, write and calculate, we will not be able to function well. What is important now is that students should be able to demonstrate the 4Cs skills, such as creativity and innovation, critical thinking and problem-solving, collaboration, and communication skills. In other words, they need to think critically, collaborate with others, know how to clearly communicate ideas, and be creative and confident.

Teacher graduates are supposed to be able to use technologies fluently and in pedagogically appropriate ways in all content areas in their daily practice. Graduates should be adjusted to and act as advocates for the emotional, physical and education needs of all their students. Instructional

strategies for the 21st century center on collaboration and differentiation. Collaboration usually revolves around Professional Learning Community (PLC), a focus on learning and results, data-driven decision-making, sharing lessons, strategies, and expertise. Differentiation means teachers need to meet the needs of the individual students, students get to choose what they want to learn and how to learn, assessing them by not only using summative assessment but also formative assessment that provides information on how teachers can meet the needs of individual students. In addition to standardized tests, students and teachers can be assessed on the 4Cs and their digital literacy skills.

Research methods and the scope of the research

The literature suggests that ensuring the quality of education must start with the teachers. There are at least four major inputs to ensure that there are high-quality teachers working in all schools across the country. Those inputs are the quality of students who apply to study at teacher training institutions, the quality of teacher trainers, the quality of teaching programs, and the presence of supporting mechanisms to ensure that the student teachers will maximize their learning.

This study is conducted at four provincial teacher training institutions located in Kampong Cham, Takeo, Kampong Speu and Kampot province. The fieldwork was conducted between June and August 2018. The school director and deputy of each PTTC were interviewed to understand the overall performance of the PTTC related to management and academic affairs. Teacher trainers were also invited to group interviews related to their teaching methods, teaching materials and student assessments. We also interviewed teacher trainees in order to understand their teaching and learning, practicums, and their living conditions in the dormitories.

School principals and teachers at Application and Cooperation School were also invited for the cross-examining to explore their opinion, their reflection on student-teachers' performances during practicum and the cooperation between those schools and the PTTCs.

New teachers who had graduated from PTTCs between one- and five-years prior were also invited to take part in the study. Having meeting with them aimed to understand their challenges and best practices of teachers after graduating from a PTTC. It is expected that the information

obtained from those graduates will help to redesign the teaching methods and other activities in order to improve the teaching and learning at PTTCs in the future.

Officials from the Teacher Training Department (TTD) were interviewed to explore how PTTCs were managed, the development of the training curriculum for pre-service, in-service, and other materials for teacher trainers' capacity development. Any assessment reports made by TTD were reviewed to understand how PTTCs have changed over time.

Demographic data of teacher trainers was also collected from TTD to understand the distribution teachers' age and years of experience working as teacher trainers in certain PTTCs. We also collected the application data of teacher candidates and admitted candidates from TTD to understand how many students applied for PTTC and if this number changed over time. The quality of the applicants was also examined.

Research findings

The overall findings of this research are related to the quality of PTTC performance ranging from management issues to teaching and learning facilities and extends to the full employment of student teachers. The major finding is that PTTCs are facing tremendous challenges due to weak management, the limited capacity of teacher trainers, the low quality of student teacher graduates, a confusing curriculum, the low confidence of recent graduates from PTTC, and insufficient amenities at the PTTC. In addition to this, there was a lack of looking forward to ascertain the best teaching and learning practices for the coming decades. The ability to strengthen the quality of PTTCs to deliver inquiry-based learning is still questionable.

The quality of the PTTCs is mainly related to three major factors: teacher trainers, teaching materials and teaching methods (as shown in Figure 2). However, it should be noted that there are additional factors that very critical to the quality of the PTTCs and they are all reinforced each other.

Teacher trainers

The study showed that quality of teacher trainers is limited in terms of content knowledge, pedagogical skills, research, and information and communications technology (ICT) skills. Before the introduction of a new curriculum based on a credit system that occurred from 2018, trainers were doing relatively well with content knowledge. However, since the change

in curriculum they find it difficult to understand the content of subjects (especially mathematics) and hard to find proper materials to teach, let alone knowing how to teach.

Figure 2: The cycle of learning at Pedagogical Schools



PTTC was perceived as a bridge or a temporary place for teachers who cannot teach at high schools either because of their limited capacity or because their specialization; for example, psychology is not required in high schools. This has significant implications for their teaching performance at the PTTC.

In general, trainers at PTTCs can be categorized into two groups: trainers in professional qualification cadre A or B (គ្រូកម្រិតមូលដ្ឋានក្របខណ្ឌខ និងគ្រូកម្រិតឧត្តម ក្របខណ្ឌក). The trainers are approximately equally divided between cadre A and B (50% per cadre). Regarding educational qualification, per PTTC, there are a few trainers without a bachelor degree, some with a Bachelor of Art, and very few master’s degree holders (even though some of the master’s degrees held are not relevant for their current specialization). Therefore, the qualification of trainers varied. Those who have not had higher learning found it hard to teach subject content which is higher than their capacity or at a bachelor’s degree level.

Three out of the five trainers interviewed have never taught in primary schools. Some trainers do not have classroom teaching experience at primary schools or experience dealing with young learners. They only experience real classroom teaching environments when they visit

Cooperation Schools during practicum. Therefore, they lack exposure to real classroom and school environments as well as experience dealing with young learners, parents and the community.

Teacher trainers are also required to teach research skills to the trainees in semester 2 of year 1 and semester 1 of year 2. However, the research capacity of trainers is limited; they mainly taught what they learnt at universities or at NIE and they do not follow proper research processes. None of them knew what action research is. The PTTC management team has already requested MoEYS/TTD offer research skills training to teacher trainers; however, at the time of conducting the fieldwork, there had not been any response. Some trainers have master's degrees but they lack knowledge concerning research and publications, even if they are the main trainers or national core trainers with whom VVOB, an NGO prepare teaching materials. A VVOB staff member mentioned that when they provided training to trainers, they were usually required to prepare thorough and step-by-step guides for the trainers to follow.

ICT skills are one of the most important elements in the 21st century classroom. Teachers need to know how to balance content, pedagogy, and technology, which is related to technological pedagogical content knowledge (TPCK). A deputy director commented that trainers know basic computer skills such as how to use Microsoft Word and Excel; however, only three out of 10 teacher trainers knew ICT and applied it in classroom, while the rest opted to use paper and blackboards. The ability to search for documents on the internet and use mobile technologies in aiding the learning process is also limited. PTTC also lacks LCD projectors and laptops. Some trainers did not know how to do Google searches and did not have their own computer.

Teacher trainers acknowledged their limited capacity, saying they are hesitant to teach since the introduction of the new credit systems curriculum. They requested MOEYS provide them with upgraded training or fast track programs for PTTC teachers, especially those in Cadre B.

Teaching materials

Before 2018 the Curricular Program for Year 1 and 2 at PTTC comprised of 23 subjects. The following year this was reduced to 17, but trainers still believe it is a lot for students to handle and that some subjects are not necessary or are too broad. Teacher trainers did not seem to comprehend the newly introduced curriculum based on a credit system and claim to have training provisions or teacher manuals.

The new curriculum framework is based on credit for 12+2: trainers are only given the syllabus and need to create their own teaching documents and lesson materials by searching the internet or the library. Teacher trainers perceived the content in the new curriculum is deeper and more difficult than before. They are having difficulty in implementing the new curriculum, and are not being provided any help from MoEYS/TTD.

The teacher trainers argue that since they were only given topics, it is difficult to teach. They report not being able to find lessons and materials by themselves. This could be due to a lack of willingness to do research and find material to teach, insufficient time allocated for lesson preparation, and not being clear about their teaching. In addition to this, teacher trainers are worried that if they were to use their own teaching materials, trainees will not be able to comprehend and pass the exit exam, where test papers are mixed with other PTTCs at a national level.

Teacher trainers reported they have already compiled some materials to teach the subjects. However, while they are becoming accustomed to the new system, they have limited capacity in technology (e.g., searching the internet). In relation to ICT, trainers' pedagogical skills and subject knowledge are limited.

Access to references from the library

PTTC libraries are generally not conducive places for learning activities. They mostly contain out-of-date, dusty books which are not helpful. They appear to not have a librarian taking care of them or have proper library management, in contrast to some primary schools which have good libraries that are supported by different NGOs.

PTTC libraries do not provide a great variety of books. Student teachers do not come to read and do assignments in there; they mainly just visit the library on occasion to borrow books related to teaching methods, main textbooks, history and storybooks.

From library book-borrowing record, for one academic year, a trainer borrowed three to four books on average from library on subjects related to their specialization. However, there is lack of teaching documents and references on for research on some subjects.

Traditional teaching methods

The teaching methods used at PTTC are not innovative. Trainers seem to lack understanding of new teaching methods; e.g., they have never heard of problem-based or project-based approaches. At the time of fieldwork, they had only been provided training on inquiry-based learning (IBL) two months previously. Out of five respondents, only an English teacher had introduced IBL to her teacher students. She described the process as follows: posing two questions, asking students to guess or estimate the answer; then find and/or comparing answers by looking them up on the internet. This describes the basic level of IBL, where teachers post the questions and set the experiments for students. With the highest level of IBL, students have to develop their own enquiries and questions and set up their own means to find answers and draw conclusions.

The teacher trainers believe IBL is easy to apply in science and math, but not in Khmer or social studies. There are challenges of introducing IBL in social studies on how to make conclusion or Hypothesis. Despite that, teachers are trying to integrate IBL steps in other subjects.

Trainers in general were observed to show a lack of initiative concerning adjusting their teaching methods, changing teaching practices, and following up or researching new teacher trainees/teaching methods. Informants reported they do not produce videos for education purposes or sharing.

A trainee from a PTTC stated that the only classes where teachers often use modern teaching methods are English and social studies. They said that only 30% of the teachers have interesting teaching approaches. The rest usually use blackboards, call out text for students to copy into their notebooks, ask students to copy lessons from the textbook into their notebooks at home, or have limited usage of teaching aids that help student better comprehend the subject matter.

Other factors

Given the Provincial Department of Education Youth and Sport is involved with PTTCs and/or RTTCs, there is room to improve. The most pressing area to be considered is the connection between the management institution and the student teachers. The connection could be made in various forms but we would suggest that a representative from the PoE, e.g., a director and/or technical person (who may often contact with teacher) should teach some subjects at a TTC. The most relevant subjects are the Code of Conduct for Teachers and Education Administration. This teaching could be regarded as initial communications with prospective

teachers and it could establish the fundamental relationship between educational leaders and subordinates.

There are strong tendencies among the student teachers and newly graduated primary school teachers to look for opportunities to transfer their Level B teaching certificate (teaching at primary school) to a Level A certificate (teaching at upper secondary school). This is evident when 1) they sit for the Regional Teacher Training Center (RTTC) exam before passing the PTTC exam; and 2) they are doing their bachelor degree at a local university.

It worth discussing that more than 70 percent of student teachers have studied at a higher education institution such as the Royal University of Phnom Penh and dropped out from those institutions to pursue the study at a PTTC. The reasons behind this decision are 1) there is secure employment after graduating from a PTTC; 2) the cost of living in the capital is high but their family is poor; and 3) encouragement from parents who want their children to become teachers.

There are some solutions to encourage primary school teachers to remain in the primary school teaching profession. The first is related to salary, which should be of similar salary scale and teaching burden as secondary school teaching. It was also suggested that primary school teachers should teach different subjects to reduce their contacting time with studutes; for example, science, Khmer and mathematics. By doing so, teachers could reduce their workload and have more time to focus on slow learners and/or giving more detailed feedback to students.

The Primary Education Department (PED) employs teachers from PTTCs. Therefore, PED should know what skill sets they need from new graduates from PTTC. However, they have not communicated with PTTCs to request the skill sets that would equip student teachers before leaving the TTC. Also, PED may not have the annual report on teacher performance and understand what degree of knowledge and skills teachers currently possessed. The report could serve as the guideline for teacher capacity development.

Conclusion

The aim of this research is to gain an up-to-date understanding of the current status of provincial teacher training centers (PTTC). The investigation ranges from the MoEYS level to the primary schools where

fresh graduate student teachers are working. At the PTTC, we explored how it operated and what facilities were present to support its operations.

Our major finding is that the PTTCs have low performance. First, PTTC has little authority to manage its staff. Staff were sent to PTTCs by PoE and PTTCs have limited authority to refuse the given staff. There is a commonly told anecdote that the PTTC is the parking lot for unqualified teachers who are not able to teach in any high schools within the province. This suggests that there are few qualified trainers teaching at the institution.

The PTTC is still running in a traditional mode in that they are generally operating as ordered by PoE and/or Teacher Training Department (TTD). There is no strategic plan but there is an annual operation plan (which is based on central plan or routine activities). This could be attributed to initiatives taken by the directors and/or rule and regulation set from the MoEYS/TTD.

This main limitation of the study is that it failed to capture the opinion of political leaders at the ministerial level. This is because the authors wanted to instead hear the perspectives and reflections of the people at the technical and implementation levels, including the trainers and trainee. To ensure the validity and reliability of the research, quantitative research should be conducted and key informant interview with senior official from MoEYS should be done.

Recommendations

Primary education is the heart of the education system. When the students have a strong basis in education at the ages of 6 to 11, they will be able to do better at the later education levels. Thus, the capacity of primary teachers and teacher educators must be high. The study found that the individual and institutional capacity of the teacher trainers and the PTTCs needs a considerable improvement in both administration and academic issues. Thus, the study has the following reflections and recommendations.

Competency standards for teacher Educators: MoEYS should consider implementing teacher educator competency standards to meet the TEPS. Similarly to the Competency Standards for Directors of Teacher Training Center, professional/competency standards for teacher educators should highlight the competency/capacity of the teacher trainers, especially for basic and professional education. The trainers should hold at least a master's degree in their respective fields and a teaching license. If these

standards are available, about half of the challenges faced by the TTC would be addressed; e.g., low-quality teachers being transferred to the institution, the poor capacity to master the content knowledge required to implement the new curriculum, and the research and publication abilities of the teacher trainers.

Upgrading TTC libraries: The current libraries are underperforming. Reference books, computers and internet connections as well as printing and photocopying should be available in all TTC libraries. In the 21st century education context, the library is the major facility to enable students to learn. Any major investment on TTC should start with the library. The most urgent aspects of the library to upgrade are the IT infrastructure and reference materials for teaching the new curriculum.

Upgrade and update teacher trainers' knowledge and skills: Low educational background, poor ITC skills and limited English prevent the trainers from delivering a high-quality education to student teachers. It is strongly recommended that the trainers receive a systematic training program, not just workshop-based capacity development, as is currently done. Improving research skills should also be prioritized among those trainers. It should be noted that the Competency Standards for Directors of Teacher Training Centers notes the need to build the capacity of teacher trainers.

Empower TTCs: TTCs have two major institutions supervising their day-to-day operation: PoE and TTD. It has been observed that TTD is the implementing agency rather than executive one. With more highly qualified directors, TTC could be an academic and social institution where teaching, learning, and academic networks are established. Therefore, providing more executive power to TTC would yield better results.

Promote research and development at TTCs: Research and development (R&D) is very critical for 21st century learning and teaching. Research found that the trainers are not capable of conducting research, writing report, and publishing articles. R&D initiatives could create new learning environments for the trainers. Teacher trainers should be encouraged to join professional learning communities or a professional society for their professional development in their areas of expertise and scopes of work. Special research seminars should be regularly organized at the PTTCs to enhance the capacity of research by demonstrating simple research teaching, simple research paper-writing and the usefulness of research and development.

Orientation for new teacher graduates: Before allowing fresh graduates to host a classroom, there should be an orientation session at TTC. This kind of school-based induction training builds confidence and a support system for new teachers and they feel more warm and secure in the beginning stage of being a new teacher. The sessions should cover topics ranging from classroom management to building networking among teacher communities. This orientation could be done at the school level and/or the cluster level. The new teacher, moreover, should share what they learned from the TTC with senior teachers, so in turn the senior teachers may pass on the lessons learned to other teachers. The new teachers should be guided on what resources and support are available at their school and how to improve their career development under the framework of the teacher career pathway.

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Article

Mathematics Teaching: Improving Student Learning Achievements in Mathematics in Grade Eight.

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Abstract

This study hypothesizes that teacher quality and instructional quality are the classroom-level determinants that most directly affect student learning and achievements in mathematics in Grade 8 of lower secondary schools in the Cambodia educational context. This study is conceptually designed under the framework developed by Nilsen, Gustafsson, and Blomeke (2016), Danielson (2007), McEwan (2014), Anderson, Krathwohl, and Airasian (2001) and OECD (2017). The framework covers 1) learning expectations, 2) teacher quality and 3) instructional quality.

Key Words: Quality, teacher quality, instructional quality

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Introduction

When parents or guardians send their children to school, they generally expect that the school system will equip their children with general and technical knowledge and critical thinking skills as well as the

behavioral values necessary and relevant to their everyday and future lives. To address this concern, learning in schools requires active and productive facilitation and guidance provided by well-trained, qualified, responsible and model-driven teachers. Thus, teachers have to be well equipped with good knowledge of subject content as well as effective skills in pedagogical practices, assessing learner context, assessing learning outcomes, learner performance and 21st century skills as well as positive and role-model behavioral conducts (Association of Teacher Educators and Rowman & Littlefield Education, 2009; Darling-Hammond, 1999; Blomeke, Olsen, & Suhl, 2016; OECD, 2017).

Research methods and scope

The Cambodian school system today is not able to produce quality learners with relevant knowledge and critical thinking skills to meet the needs of the new trends of the internet-driven market in the 21st century (World Bank Group, 2018; Tandon & Fukao, 2015; Education Quality Assurance Department, 2018). In its report “Growing Smarter,” the World Bank (2018) stated that “*Cambodia rural children have to attend ill-equipped schools with underprepared teachers*”. The national mathematic assessments of Grade 8 in 2014 and 2017 showed that the majority of Cambodian school students are going to school and sitting in classrooms, but true learning is not provided in the school system (Table 1). Tomlinson (1999) stated that, “*In the truest sense, teaching is not finished until learning occurs for each learner. Teaching without learning is an oxymoron.*”

Table 1: National assessment of mathematics by grades in 2014 and 2017

Subject	Year	Grade	Average correct answers/passed
Mathematics	2014	8	44.0
Mathematics	2017	8	47.0

Source: (Education Quality Assurance Department, 2018)

The Education Quality Assurance Department (2018) conducted an assessment of mathematics proficiency in Grade 8 in 2017 found that about 67% (or two out of every three questions) of the mathematics assessment items of cognitive domain (the most basic level) are not answered by students.

Conceptual framework

Teachers matter the most in the student learning and achievement (Darling-Hammond L. , 1999; Kyriacou, 2009; Zuzovsky R. , 2003; McEwan, 2014). Therefore, this study hypothesizes that teachers ‘qualifications and their instructional quality are the classroom-level determinants that most directly affect student learning and achievements in mathematics in Grade 8. This study is conceptually designed under the framework developed by Nilsen, Gustafsson and Blomeke (2016), Danielson (2007), McEwan (2014), Anderson, Krathwohl and Airasian (2001) and OECD (2017). The framework covers 1) learning expectations, 2) quality teachers and 3) instructional quality.

Methods

Fifteen lower secondary schools in the Battambang province and fifteen lower secondary schools in the Prey Veng province were purposefully selected based on the results of the national mathematics assessment conducted by the Education Quality Assurance Department of the Ministry of Education, Youth and Sport in 2017. The assessment found that the average passing rate of the 15 schools in Prey Veng province was 46% and the average passing rate of 15 schools in Battambang province was 63%, among the highest passing rate in the national assessment.

A survey questionnaire was distributed to teachers that included questions on the status of teacher’s housing, educational and teacher-training background as well as their classroom experience and continuous learning skills. It also asked teachers to conduct a self-evaluation of their understanding of mathematical concepts, skills in defining mathematical concepts and written statements of learning outcomes as well as the practices of Cambodia’s five-step teaching norm and classroom-based assessment practices.

A series of in-depth interviews were conducted with 15 teachers in order to seek clarity on the views of mathematics teachers regarding learning expectations, common practices of Cambodia’s five-step teaching norms and practices, pedagogical practices, assessment practices and the understanding of learner context.

The participants were teachers at the selected schools who were responsible for teaching mathematics at Grade 8 in the academic years 2015–2016, 2016–2017 and 2017–2018. The profiles of teachers cover different aspects that affect classroom activities and student learning and achievements. This study did not consider the effect of the school’s

physical factors or the school's management factors on students' learning achievement.

The questionnaires were distributed to the 15 selected schools in Prey Veng and 15 selected schools in Battambang; however, only 14 schools from Prey Veng province and 9 schools in Battambang province returned the questionnaires. As this study focused on the selected schools, it may not represent the whole system of schooling. Despite this limitation, this study may shed some light on root causes that affect the quality of learning in mathematics in lower secondary schools in Cambodia.

In order to measure the level of understanding of mathematical content among teachers, a series of competency tests needs to be conducted. This study used a self-judgment method to measure their understanding on three mathematical concepts: algebra, geometry and statistics. The self-judgment method depends very much on the truest sense of the response.

Findings and Discussions

Teacher quality

Tertiary qualifications in major subjects

Continuous professional development is inevitable for teachers, but not all professional development programs are effective. To be effective, professional development programs should cover subject specialization, learner context, assessment skills and pedagogical practices. The results of the survey showed that a small percentage of mathematics teachers had pursued a tertiary degree in the subject they teach at schools to improve their competency in content knowledge. Of the 42 respondents, 19 did not mention the subject they studied at tertiary level and 14 (33%) graduated with a bachelor's degree in mathematics, one in physics, one in history, one in geography, two in Khmer literature, two in biology, one in accounting and one in agriculture. So, nine (21.5%) of the 42 respondents completed a bachelor's degree in a subject other than mathematics but were still asked by their school principal to teach mathematics. The teachers who specialized in social science and other subjects shared the same sentiments – *“If I rejected the proposal of my school principal, what can we do with the students, as they are eager to learn the subject of mathematics? Even though I do not understand most of the contents and formulas in the school textbooks.”*

Reading habits

Reading can provide clarity of new contents and concepts in different fields. Most of the mathematics teachers in this study do not have a habit of reading. It was asked if they had read any articles or books in general (rather than about mathematics) for less than 30 minutes, more than 30 minutes or more than 60 minutes in the last week. Of the 42 respondents, 29 (69%) did not spend any time reading articles or books, 6 (14%) spent from 30 to 60 minutes reading an article or a book and 3 (7%) spent less than 30 minutes reading an article or a book. Of the 30 Prey Veng teacher respondents, 22 (73%) did not read any books or articles and of the 12 Battambang teacher respondents, 7 (58 percent) did not read any books or articles. Battambang teachers have better habits in reading books or articles. Of the 30 Prey Veng teacher respondents, only eight expressed their habits of reading at least 30 minutes last week and of the 12 Battambang teacher respondents, five expressed their habits of reading at least 30 minutes last week.

In order to test the accuracy of the reading self-reporting among the mathematics teachers, the survey asked the respondents to recall an author and title of the book or an article they read last week. Of 42 teacher respondents, 35 did (83%) not give a response to the question, five (12%) read only math textbooks and two (4.5%) read self-help books, but they could not remember the author of the book.

Internet-based learning-Google, YouTube, Khmer Academy, Khan Academy

As is to be expected in today's internet-driven society, the majority of Cambodia teachers have smartphones and access to internet services. 97% of the 42 respondents owned a smartphone and had access to the internet for Facebook. The majority of teachers knew about internet-based learning websites and applications. The core sources of mathematics learning were listed as Google, YouTube, Khan Academy and Khmer Academy. Among the 42 respondents, 20 often use Google to seek clarity on mathematics and other contents, 16 knew about Google but never used it and only six knew nothing about Google. Of the 42 respondents, 24 often use YouTube to seek clarity on mathematics and other contents, 14 knew about YouTube but never used it for mathematics learning purposes and only four knew nothing about YouTube. Of the 42 respondents, five often used Khmer Academy to seek clarity on mathematics, 13 knew about Khmer Academy but never used it for mathematics learning purposes and

24 knew nothing about Khmer Academy. Of 42 respondents, no one used Khan Academy. Of these, 17 knew about Khan Academy but never used it and 25 knew nothing about Khan Academy. Comparing the use and knowledge among the mathematics teachers of internet-based learning websites and applications of the two provinces, of the 30 Prey Veng teacher respondents, 16 (53%) used Google for learning mathematics and other content and of the 12 Battambang teacher respondents, 4 (33%) often use Google for learning mathematics and other content. Of the 30 Prey Veng teacher respondents, 18 (60%) used YouTube for learning mathematics and other content and of the 12 Battambang teacher respondents, six (50%) used YouTube for learning mathematics and other content. Of 30 Prey Veng teacher respondents, four often used Khmer Academy to learn mathematics and of the 12 Battambang teacher respondents, one often used Khmer Academy to learn mathematics. Of the 42 Prey Veng and Battambang teacher respondents, no one used Khan Academy, though 17 of them knew about it.

Classroom experience

Many studies such as Blomeke, Olsen, & Suhl (2016), Danielson (2002) and Kyriacou, (2009) confirm that the number of years of classroom experience is not a major factor for ensuring true learning within the classroom; however, experienced teachers are more confident in communicating with different types of learners. About 90 percent of the mathematics teachers surveyed have more than six years of classroom experience. Comparing the years of classroom experience between the two provinces, of the 30 Prey Veng teacher respondents, 22 (73.3%) have at least six years of classroom experience, only three (10%) have less than six years of classroom experience and five (16.6%) did not answer the question. Of the 12 Battambang teacher respondents, five (41.6%) have at least six years of classroom experience, two (16.6%) have less than six years of classroom experience and five (41.6%) did not answer the question. The 2017 national mathematics assessment revealed that Battambang outperformed Prey Veng by 17%; however, Prey Veng teachers have more years of classroom experience than Battambang teachers, 73.3% versus 41.6%. It is therefore concluded that years of classroom experience do not ensure true learning in the classroom.

Quality of teacher training

The quality of learning within the classroom depends heavily and largely on quality teachers and quality teachers are the products of quality

teacher training and education. The majority of mathematics teachers had graduated high school before they attended teacher training programs at regional teacher centers. All of the respondents have completed the same national teacher training program and curriculum but they did different types of teacher training programs. Of the 42 respondents, seven were the products of the 7+3 teacher training program introduced in 1984 and four were the products of 8+3 teacher training program introduced in 1988. It is noted that of 42 respondents, two had graduated with a bachelor's degree before they attended the teacher training program at regional teacher training program. Data shows that of 30 mathematics teachers from Prey Veng, 21 (70%) had graduated their high school certificates before they attended the teacher training program at regional teacher training centers. Of the 12 Battambang respondents, seven (58%) teachers had achieved their high school certificates before they attended the teacher training program at regional teacher training centers. The results of the national mathematics assessment in 2017 revealed that Battambang outperformed Prey Veng by 17 percent in their passing rate. The difference of the quality of teacher training programs at Battambang and Prey Veng needs to be carefully studied.

Instructional quality

Content knowledge

Mastering content knowledge and the concepts of mathematics are core values for effective learning, teaching and instruction in mathematics. In order to define the level of understanding of mathematic contents and concepts, the respondents were asked to conduct a self-judgment of their understanding of three mathematic concepts defined the school textbook – algebra, statistics and geometry – at three different levels: 100% understanding, more than 75% understanding and less than 75% understanding. The study did not cover the concepts of numbers and measurements and did not break down the three concepts into the sub-areas of each concept.

Algebra

Even though many of the teachers have been teaching mathematics for more than six years in schools, the self-judgment showed that the majority of mathematic teachers need to develop a better understanding of algebraic concepts. Of the 42 respondents, nine (21.4%) stated that they have 100% understanding of the algebraic concepts in the school textbook, 30 (71.4%) have more than 75% understanding and three (7.1%) have less

than 75% understanding. The 2017 mathematics national assessment revealed that 47.3% of students passed the 2017 national mathematics assessment. This leads to the conclusion that content knowledge is very important for teachers to engage learners in the learning process and to ensure clarity of the algebraic concepts for their students. Clarity on mathematics concepts and applications for learners requires that mathematics teachers master the content, concepts and applications. Comparing the two provinces, of the 30 Prey Veng teacher respondents, five (16.6%) self-reported they had a 100% understanding of algebra concepts, 23 (76.6%) had a more than 75% understanding of algebra concepts, and 6.6% reported an understanding of less than 75%. Of the 12 Battambang respondents, four (33.3%) reported a 100% understanding of algebraic concepts, seven (58.3%) reported more than 75% understanding and one (8.3%) reported they had less than 75% understanding.

This study revealed that Battambang Grade 8 students outperformed Prey Veng Grade 8 students in the national mathematics assessment in 2017, as Battambang teachers have a higher level of understanding of algebraic concepts.

Geometry

The teachers reported a low level of understanding of geometry concepts. Of the 42 respondents, five (11.9%) reported they had a 100% understanding of geometry concepts, 31 (73.8%) reported a more than 75% understanding and six (14.2%) reported a lower than 75% understanding. A comparison of the levels of understanding of geometry concepts among teachers in the two provinces found that Battambang teachers have a higher level of understanding of geometry concepts and their students outperformed Prey Veng students in the national mathematics assessment in 2017 by 17%. 10% of Prey Veng teachers reported 100% understanding on geometry concepts and 16.6% of Battambang teachers reported 100% understanding on geometry concepts. 76.6% of Prey Veng teachers reported more than 75% understanding of geometry concepts and 66.6% of Battambang teachers reported more than 75% understanding of geometry concepts.

Statistics

The 2017 national mathematics assessment of Grade 8 revealed that less than 40% of students (38% in probability and 28% in statistics) gave correct answers to the test questions. The national assessment gave a heavier weight to the capacity of school teachers in delivering the learning

outcomes of the lessons on statistics in the school textbooks and the teachers are not able to finish the lesson on statistics as it stands at the last pages of the school textbook (Education Quality Assurance Department, 2018). This study found a high level of understanding of statistical concepts among teachers in the two provinces. Of 42 respondents, 45.25% reported 100% understanding of statistics concepts, another 45.25% reported more than 75% understanding of statistics concepts and 9.50% reported less than 75% understanding of statistics concepts.

A comparison for the level of understanding of statistical concepts among teachers in the two provinces showed that Battambang teachers have a higher level of understanding of statistical concepts than the Prey Veng teachers. 43.3% of Prey Veng teachers reported a 100% understanding of statistics concepts and 50% of Battambang teachers reported a 100% understanding of statistics concepts. 46.6% of Prey Veng teachers reported more than 75% understanding of statistics concepts and 41.6% of Battambang teachers reported more than 75% understanding of statistics concepts. 10% of Prey Veng teachers reported less than 75% understanding of statistics concepts and 8.3% of Battambang teachers reported less than 75% understanding of statistics concepts.

Demonstrated practical exercises in the school textbook

The structure of mathematics textbooks is organized in the format of contents, theories, formulas, examples of mathematical processes, practical exercises and extra exercises. When asked to conduct self-judgment on their confidence in demonstrating the practical exercises in the school textbook, of the 42 respondents, only three teachers (7%) confirmed they had 100% confidence in demonstrating the mathematical process of the practical exercises in the textbook, 29 teachers (69%) reported a confidence of more than 75% that they could demonstrate the practical exercises in the school textbooks and 10 teachers (24%) reported a confidence of less than 75% to demonstrate the practical exercises in the textbook.

A comparison of the level of confidence among the teachers in the two provinces in demonstrating the practical exercises in the textbooks illustrated that the Battambang teachers have slightly higher confidence than the Prey Veng teachers. 6.6% of Prey Veng teachers reported 100% confidence in demonstrating practical exercises compared to 8.3% of the Battambang teachers. However, 73.3% of Prey Veng teachers reported they had more than 75% confidence, in comparison to only 58.3% of

Battambang teachers. 20% of Prey Veng teachers secured less than 75% confidence and 33.3% of Battambang teachers secured less than 75% confidence in demonstrating practical exercises in the Grade 8 school textbook.

Demonstrated practical exercises from other sources

In today's internet-based society, mathematics and other subjects can be learned from internet sources in Google and YouTube and practical exercises can be taken from these sources. In order to measure the level of confidence among teachers in demonstrating mathematical exercises from different sources other than school textbooks, the respondents were asked to conduct self-judgment, rating themselves either 100% confident, more than 75% confident and less than 75% confident.

Of the 42 respondents, 13 teachers (31%) reported they had 100% confidence in demonstrating practical exercises from sources other than school textbooks, 29 teachers (69%) confirmed their confidence of more than 75% and no teacher expressed that they have less confidence than 75%. However, among the teachers from the two provinces, Battambang teachers expressed lower confidence than Prey Veng teachers in terms of demonstrating mathematical exercises from other sources rather than school textbook, 33.3% vs 25%.

Defined learning outcomes in statistics lessons

The survey requested respondents write a statement of a learning outcome or a learning objective of a lesson on statistics in Grade 8, as they regularly do during the academic year. Of the 42 respondents, only one wrote, "Students knows average, median and mode." With this statement in mind, mathematics teachers need to develop knowledge and skills in defining learning outcomes.

Teaching hours/week and numbers of students/class

Class size and teaching workload really affect classroom management and the instructional process, contributing to lower or higher learning achievements among learners. The average number of students in one class in the two provinces is 47 students and the average number of hours per class each teacher has to teach is 18 hours per week. The teaching workload of the Prey Veng teachers is much higher than that of the Battambang teachers. The class size of the two provinces is not very different but the average number of hours taught is. Every Prey Veng teacher has to spend 19 hours per week to meet their teaching

responsibility, while every Battambang teacher has to spend 15 hours per week to take their teaching responsibility.

A deeper review of the teaching workload of the mathematics teachers in Battambang and Prey Veng revealed a significant difference. 40% of Prey Veng teachers take at least 20 hours per week for their teaching workload, but only 8% of Battambang teachers take at least 20 hours per week for their teaching workload. 23% of Prey Veng teachers take less than 18 hours per week for their teaching workload, but 59% of Battambang teachers take less than 18 hours per week for their teaching workload.

Instructional process

The five-step teaching model has been applied in all general education levels in Cambodia for more than three decades, including teacher training centers, the National Institute of Education, and all school subjects. The five-step teaching model is compulsory within the system as teachers and schools are expected to be inspected by education inspectors from both provincial and national levels. The core element in promoting learning is to answer the question of how much the teacher is directing learning in his/her mathematics classes?

The result of classroom observations conducted by the research team found that the Cambodian classroom and school context have been organized in a traditional way for generations by seating students at desks, passively listening to teachers, while teachers stand in front of the class, lecturing and demonstrating concepts, contents, theories, formulas or practical exercises. Cambodian classrooms feature more teacher-directed teaching and less learner-oriented instruction, which covers lectures, lesson summaries, question-and-answer periods.

The in-depth interviews explained that learning mathematics in the classroom today means covering the contents defined in the school textbook in order to comply with requirements of the school inspectors.

Conclusion and Recommendations

Content knowledge

The core problems in promoting students' learning of mathematics is that most teachers have not mastered the concepts, contents and formulas of mathematics themselves. A series of self-guided learning materials needs to be developed and made available for teachers. The self-

learning materials should be developed in response to an inquiry and concept-based approach.

Learner-centered pedagogy

Learner-centered pedagogy is well-known among teachers in Cambodia. However, group work is the most popular and a best recognized method applied by teachers. In order to ensure that group work is fruitfully used, a step-by-step guide on the applications of learner-centered pedagogy needs to be developed. The guide should govern the philosophy of student-centered learning, outlining the significance of each step and application of the guide.

Other aspects to be considered in designing learning or applying any type of instructional pedagogy are classroom design and student context. Classroom design currently in Cambodia is very traditional and therefore it is hard to conduct learner-oriented classroom activities. Teachers find it hard to explain types of learners and their preferences in the Cambodian context. It is significant that a self-learning text on learner context or different types of learners needs to be developed and tested among teachers.

Continuous learning habits

A habit of reading is a competency for life-long learning and seeking clarity regarding new knowledge and concepts. Cambodian teachers need to develop this habit or skill so that they can guide their students to read different contents and concepts from different sources. Promoting reading should start with teachers.

Lesson planning

The current practice of planning a lesson is to focus on covering the contents and texts written in the core textbooks rather than paying attention to learning, particularly to poor learners. In order to ensure the existence of learning among learners, it is necessary that lesson planning should shift its focus from contents and texts written in the textbooks to concepts of learning and expected learning outcomes. This requires a study of the effectiveness of the current lesson planning and its practicality with school teachers.

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Article

Challenges to Provincial Education Strategic Plan Preparation in Cambodia

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Abstract

The Ministry of Education, Youth and Sport (MOEYS) has been reforming the education system through strengthening educational planning and management at national level and provincial level since 1999. In 2006, MOEYS encouraged Provincial of Education offices (POEs) to formulate the provincial of the education strategic plans (PESP) 2007–2009 with the aim of strengthening the quality of education and management in the education sector. In 2014, MOEYS encouraged the POEs to formulate provincial education strategic plans (PESP 2015–2017) again. However, this strategy still has some challenges, such as the limited capacity development of officers specialized in aspect of planning and statistic at POEs, poor knowledge and skills in education sector diagnosis (ESD) analysis and a lack of technical support from the national level. Thus, it is very important to improve the process of the PESP preparation at the provincial level in order to be effective. This study was made to (1) identify the procedures for ESP preparation at the provincial level in Cambodia; (2) identify the challenges of ESP preparation at provincial

level in Cambodia; and (3) formulate strategies to address the challenges of ESP preparation at provincial level in Cambodia.

The findings of this study show that the challenges to the education strategic plan (ESP) preparation process at provincial level are related to (a) a lack of knowledge of the procedures for how to prepare an ESP, (b) a lack of technical support provided from the national level, (c) planning officers having limited capacity in the use of planning concepts and statistics, (d) limited participation from stakeholders involved in ESP preparation (joint steering committee, technical working groups (officers in each offices at POEs) and development partners (NGOs at the local level), (d) frequent staff turnover, (e) some data are not reliable for minority groups, especially in the plateau and mountain areas

Key words: Education, Education Strategic Plan, Educational Planning

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Introduction

The Ministry of Education, Youth and Sport (MOEYS) has been reforming the education sector since 1999 with ESP 2001–2005, the first plan formulated under, initiated and led by the Minister of Education and Secretary of State. The process has involved extensive internal consultations within MOEYS through four policy task forces, ongoing consultations with the Ministries of Economy and Finance, Planning and the Interior as well as the Public Administrative Reform Council (PAR). In addition to this, MOEYS formulated the Education for All (EFA) Plan of Cambodia in 2003–2015 and ESPs for 2006–2010; 2009–2013 and 2014–018 on the national level with the purpose of strengthening the quality of education and education management in order to respond to the country's changing labor market and social economic needs.

In 2008, the Royal Government of Cambodia (RGC) established a Royal Decree of the National Committee for Democratic Development (NCDD) to coordinate and lead the implementation of a decentralization and de-concentration policy. It has also established a National Program for Sub-National Democratic Development (NP-SNDD) in 2010 that transfers the decision-making power concerning education and development from national to local levels (communities and the private

sector). The MOEYS has been encouraging the provincial of education offices (POEs) to prepare their own education strategic plan (ESP), budget strategic plan (BSP) and annual operational plan (AOP), with the aim of improving the quality of education, responding to the national ESP 2014–2018, the National Strategy Development Plan (NSDP) 2014–2018 and achieving the Government’s Rectangular Strategy.

According to the report of the Formulation Mission on Basic Legislation for Decentralized Commune Councils (Roome 1998), the transfer of decision-making about education and development from a centralized government body to the provincial groups’ involves (i) financial decentralization through according substantial budgetary autonomy (including the means to generate revenue internally) to intermediate and local levels; (ii) administrative decentralization, comprising the dispersal of decision-making power to lower levels; and (iii) political decentralization, comprising the transfer of policy and legislative powers from the central government to democratically elected, autonomous, sub-national assemblies. Decisions will be made much more quickly when they do not need to go through a long bureaucratic process (for example, from an individual school through several intermediary offices to the central level) but can be made at a level close to the school (Roome 1998: 10).

MOEYS is responsible for overseeing the technical aspects of ESP implementation and monitoring. The Minister and MOEYS senior management meet regularly at the Program Management Committee (PMC) to review the sector’s progress and present an annual report to the Education Congress. The report to the congress may propose changes to the ESP monitoring framework.

Throughout 1999 and 2000, MOEYS also mobilized consultative processes with provincial and district education staff and community representatives on policy priorities. This process included discussions with the National Parents Association Forum (NPAF) in late 2000 and regular consultations with development partners. MOEYS has also encouraged Provincial of Education Offices (POEs) to contribute to the formulation of the ESP 2015–2017. In this regard, MOEYS has prepared three-year rolling BSPs and AOPs since 2008 for the national level, AOPs for POEs since 2011 and AOPs for District of Education Offices (DOEs) in 2014.

MOEYS is committed to speeding up education reform with the

help of development partners such as UNICEF, UNESCO, the EU, Sweden, Sida, Save the Children, and the NGO Education Partnership (NEP). The ministry recognizes the importance of well-planned and genuine participation of provincial and district authorities, school staff, parents, community groups, and the private sector for participation in education reform.

The Education Strategic Plan 2014–2018 for the national level has been officially announced for implementation. ESP 2014–2018 identified a need to develop provincial ESPs, reflecting the priorities and interventions needed at the national level, including setting indicators and targets.

According to the guideline for provincial ESP preparation in 2014 (MOEYS 2014c:1) and the framework of the government's process reforms (including the programs for public financial management reform, democratic development reform, and public administrative reform), the education sector is required to establish a framework that clearly delineates the responsibilities at the national and provincial level with the purpose of identifying (1) support requirements and participation for all stakeholders in this process, and (2) The funds required for management, implementation and monitoring. Based on the national result and preparation of Provincial of the Education Strategic Plans (PESP) 2015–2017, the BSP will include all expenditures at the provincial level and will be a tool for reflecting the relationship between strategic policies and targets at the national level and their transformation into programmatic feasibility and management.

This study was made to (1) identify the procedures for PESP preparation process; (2) identify the challenges of PESP preparation process; and (3) to formulate the strategies to address the challenges of PESP preparation process in Cambodia.

Key concepts in education policy analysis (education policy analysis)

In the process of education policy development, various documents are produced. Operational policy documents can be briefly described as follows: (i) a national education policy establishes the main goals and priority issues so that specific aspects such as access, quality and teachers can be developed to achieve the objectives; (ii) a strategy specifies how the policy objectives are to be achieved; and (iii) a plan defines the targets, programs and activities to be implemented and the timeline,

responsibilities and resources required to realize the policy and strategy (Yano 2013). Before the start of a policy cycle, a strategic intent, often called a “vision,” is formed. The education policy cycle has four steps. Step 1 focuses on an analysis of the situation and general background, while Step 2 involves preparing a plan and identifies priority issues, an implementation strategy, program and activities, and a budget for implementation. In Step 3, planned and budgeted activities are implemented to achieve the targets according to the agreed timeline and responsibilities. Step 4 is the evaluation stage, where the activities are regularly monitored and reviewed and adjustments are made when necessary (Yano 2013).

Conceptual framework for education policy analysis

There are two essential dimensions of policymaking: who does it (the actors) and how it is done (the process). C. Lindblom and D. K. Cohen (1979) laid out the differences between the synoptic and incremental methods of policy-making. The synoptic method involves one single central planning authority for the whole society and combines the political and social economic domains into one integrated planning process. The incremental method, in contrast, relies less on interaction than on a complete analysis of the situation to solve the challenges. The incremental approach is also focused on policy options based on highly uncertain and fluid knowledge and in response to a dynamic situation. It assumes (a) that the problem at hand does not go beyond man’s cognitive capacities, (b) there exist agreed criteria (rather than social conflict on values) by which solutions can be judged and (c) that the problem-solvers have adequate incentives to stay with synoptic analysis until it is completed (rather than ‘regress’ to using incremental planning). G. T. Allison (1971) developed two alternative models to the commonly assumed model of the unitary rational policy-maker: (a) the organizational process model and (b) the governmental politics model (Haddad & Demky 1995).

Education policy analysis framework consists of seven policy-planning processes, the first four of which deal with policy-making, the fifth with planning, and the sixth and seventh with policy adjustment (Haddad & Demky 1995). The conceptual framework for education policy analysis focuses on formulation, evaluation, adoption, implementation, assessing impact, adjustment, and the new policy cycle. This framework for the education policy analysis process considers national priorities, the education sector, and the social political structure as part of the situation analysis, research, induction, negotiation, ad hoc opinions, and value

judgments in order to develop policy options for implementation that will solve the problems faced.

Principles for the effective preparation of an education sector plan

According to the GPE/UNESCO IIEP Guideline for Education Sector Plan Preparation and Appraisal (GPE/UNESCO IIEP 2012:7), there are three essential elements of the plan preparation process: (1) a participatory process; (2) a well-organized process; and (3) a capacity-development process. A participatory process is a process to design the education sector plan based on political will and technical expertise that can identify the balance between political ambitions and technical constraints in order to raise awareness and gain the commitment of education stakeholders. The process should involve participation from the relevant ministries, especially the Ministry of Finance, and development partners. A well-organized process should design a structure for education sector preparation and organize the roles and responsibilities of actors to coordinate the process with a steering committee, planning committee, and technical working groups. A capacity development process should improve the capacity for educational planning and the motivation of all education planners at all levels to strengthen education sector plan preparation (GPE/UNESCO IIEP 2012: 7).

According to the GPE/UNESCO IIEP guideline for education sector plan preparation and appraisal (GPE/UNESCO IIEP 2012: 9), education sector plan preparation is an iterative planning process. Targets can be revised after they are tested in a simulation model. Strategies can be set through the program's activities and resources. The education sector plan preparation process should involve consultation with education administration personnel and development partners.

In the preparation phase, the contextual, political, capacity and financial factors should be considered. The education sector plan preparation process should take around 12 to 24 months, according to whether data are available or not. The main phases of education sector plan development process have to consider the education sector's situation analysis, develop priorities and targets for policy and strategy, design programs and activities, estimate costing and financing, develop an action plan, and finance and design a monitoring and evaluation framework (GPE/UNESCO IIEP 2012: 9).

Structure of the educational planning and management in Cambodia

MOEYS has 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. In order to achieve this vision, MOEYS has the mission to lead, manage and develop the Education, Youth and Sport sub-sectors in Cambodia in response to the socioeconomic and cultural development needs of its people and the reality of regionalization and globalization. One of MOEYS' long-term objectives is to achieve the holistic development of Cambodia's young people. In addition to this, the Ministry wants to engender a sense of national and civic pride and ensure its citizens have high moral and ethical standards. MOEYS has a strong belief in young people's responsibility for the country and its citizens (MOEYS 2013: 12).

Educational planning in Cambodia has been formulated at the national level since 1999, primarily through the ESP. Provincial plans are based on the national plan. In ESP 2014–2018, the MOEYS required the POEs to produce the provincial of the Education Strategic Plan 2015-2017, Provincial of the Annual Operational Plan (AOP) by 2011; and MOEYS requires DOEs to produce the District of the Annual Operational Plan (AOP) by 2014.

The National Program for Sub-National Development (NP-SNDD), led by the National Committee for Democratic Development (NCDD) provides the framework for the decentralization and de-concentration activities. During the ESP 2014–2018 period, sub-national change accelerated, with further transfer of management and cross-sectorial functions to the provincial, municipal, district, community, and school levels.

In 2014 there will be pilots in a number of provinces and districts to transfer several functions to local governments. These pilots will assess how the decentralization process can be best implemented countrywide during the following years (ESP 2014-2018:14).

The administrative structure of MOEYS is as follows: the national level is divided into six Directorate General departments comprised of 31 technical departments. MOEYS administration distinguishes these into three types at the national level, at the central, sub-sector, and technical department level. At the central level, MOEYS has responsibility for and oversight of the technical aspects of ESP implementation and monitoring. The Minister and MOEYS senior management meet regularly at the

Program Management Committee (PMC) to review the sector's progress and present an annual report to the Education Congress. The report to the Congress may propose changes to the ESP and to the monitoring framework. At the sub-sector level, each of the sub-sectors is accountable to a Secretary of State or an Undersecretary of State. The Secretary or Undersecretary of State is supported by a contact point who is a Director General or Deputy Director General. The sub-sector is operated through a sub-sector working group that includes all of the technical departments that are instrumental in the implementation of the policy and strategic frameworks. The organization and roles within the sub-sector may change depending on the ESP implementation experience. Each working group will prepare terms of reference. They will prepare a multi-year and annual operational plan. The Department of Planning will act as a formal facilitator of the sub-sectors' organization. At the technical department level, the role of the technical department is to provide support to the provincial and district staff in the implementation, monitoring and reporting of the ESP programs and in the preparation of the provincial ESP.

At the provincial level, there are 25 provincial and municipal education services. MOEYS administration distinguishes these into three types of provinces:

- Large provinces: There are five large provinces: Kandal, Prey Veng, Takeo, Battambang, and Phnom Penh, with a total number of education staff (teaching and non-teaching) of more than 5,000. It has many offices: administration; personnel and training; planning and aid management; accounting, materials and state asset; pre-education and primary education; lower and upper secondary education; non-formal education and vocational training; examination; youth; sport; and inspection.
- Medium provinces: There are 11 medium provinces: Kampong Cham, Tbong Khmoum, Kampong Speu, Kampong Chhnang, Kampot, Kampong Thom, Svay Rieng, Kratie, Pursat, Banteay Meanchey, and Siem Reap, with a total number of education staff of between 1,000 to 5,000. It has the same range of offices as the large provinces, except for the following offices: aid management, state assets, lower and upper secondary education, and examination.
- Small provinces: There are nine small provinces: Sihanouk, Kep, Pailin, Koh Kong, Steung Treng, Mondulhiri, Rattanakiri, Preah

Vihea and Oddar Meanchey, with a total number of education staff of less than 1,000. It has the same range of offices as the medium provinces. At the district level, there are 197 districts and precincts education services. MOEYS administration does not distinguish between the different numbers of offices in each district/precinct. It has the following offices: pre-education and primary education; non-formal education and vocational training; youth and sport; and administration, personnel and accounting sections.

Methodology

The methodology of this study was conducted using a qualitative method which was classified into four categories: in-depth interviews, observation method, document review and focus group interviews with policy-makers, education strategic plan developers and the main stakeholders who are in charge of the provincial education strategic plan preparation process. This study is descriptive. It is a qualitative study using both primary and secondary data.

The study employed qualitative research techniques and analysis as “it attempts to explore and describe, explain and predict” (McQueen and Knussen, 2002, 27). Qualitative studies are used to learn about people and events in their own context (Weiss, 1998, 252). This type of study can capture stories and perceptions of people involved in the thematic context, not just looking at numbers. Descriptive data reflects the experiences and ideas of people that lie at the center of a qualitative research (Patton, 2002, 4–5). While qualitative methods are often considered as less rigorous than quantitative approaches, qualitative studies provide different rigors of their own and should not be disregarded (Flyvbjerg, 2007, 398).

Primary data was acquired through key informant interviews, in-depth interviews and observation. Secondary data were collected from MOEYS and POEs. To review the guidelines on PESP preparation at the national and provincial levels; and to review the reports on the progress and challenges for preparing education strategic plan at the provincial level.

Findings and suggestions

The interviews and discussions with DoP and officers in charge of planning at POEs about the challenges in PESP preparation process were analyzed. The findings of the study illustrated that the process of education strategic plan preparation at the provincial level still has some challenges. Of the 25 provinces in Cambodia, only eight provinces are able to prepare a PESP well (Battambang, Pursat, Kampong Chhnang, Kompong Cham,

Kandal, Prey Veng, Kampot, and Preash Vihear provinces), with the remaining 17 provinces still facing challenges with the PESP preparation process as following;

(1) Lack of knowledge of procedures for how to prepare PESP:

In 2014 MOEYS issued a legislation letter, clearly outlining the framework and guidelines for PESP preparation for POEs, which the POEs were able to use as references for PESP preparation at the provincial level. As part of the framework and guidelines for the PESP preparation process, MOEYS created the PESP Task Force (TF), with clear roles and responsibilities for the PESP preparation process. The PESP TF is led by the director of the POE and its members are the PEO's senior manager, planning and aid management officer, technical officers and representatives from development partners (DPs). The PESP TF is in charge of decision-making on all content in the PESP as well as managing and orienting the PESP preparation process and mobilizing the resources to support the process. The PESP TF has a secretariat which runs all of the processes of PESP preparation. The secretariat is led by the deputy director of the POE, some technical officers, planning and aid management officer and representatives from development partners. The secretariat has the responsibility of drafting the PESP document plan, conducting and coordinating the consultation workshop and other meetings, preparing reports regularly for the technical or sub-sector working group, and coordinating with the central level concerning the technical requirements of the PESP preparation process.

In the PESP preparation process, POEs followed MOEYS' PESP preparation guideline. POEs formulated the PESP task force and sub-sector working group in 2014 as the framework provided by MoEYS in order to develop their PESP. The PEO sub-sector working group used the PESP guidelines to review and discuss the prioritization of policy strategies and indicators. The PESP task force also is responsible for (i) preparing budget requirements and (ii) conducting consultation workshop with DOEs and schools to collect inputs to revise the first and final drafts of the PESP for approval from PEO directors, and (iii) for publishing and implementing the plan.

POEs have to design the structure of the education sector preparation and organize the roles and responsibilities of the technical or sub-sector working groups to coordinate the process as a steering committee, planning committee, and technical working groups to focus on the sub-sector as well as the monitoring and evaluation of the financial

requirements and resources in order for the PESP preparation process to run smoothly. However, POEs staff lack understanding about the procedures for ESP preparation process. The PESP task forces are not well organized. In order to perform well, the PESP TF should design an action plan, timeframe, meetings, encourage stakeholder participation, and obtain technical support from the national level to help prepare the PESP TF meet its responsibilities.

PESP TFs should select planning officers who have a background in educational planning and management to improve and ensure the PESP preparation process will run smoothly. In addition to this, POEs should motivate and upgrade staff by providing opportunities to attend local and international training courses in educational planning and management. POEs also can use the Provincial Joint Technical Working Group (PJTWG) for support and consultation in the PESP preparation process because the PJTWG is a significant actor in educational planning and management, budgeting, implementation and reporting tasks. The POE should also enhance the partnership between the government and DPs in term of resource mobilization and increased funds for the education sector.

(2). Lack of technical support from the national level. Technical support from the national level should be provided in response to the challenges faced at the provincial level. The main issue is coordination and support between the national and provincial levels, which needs to be strengthened. The national and provincial levels did not set up a common timeframe for participating in and supporting the PESP preparation process and there was not enough mentoring and coaching provided to the POE staff who are in charge of planning preparation process. MOEYS should provide a clear framework and guidelines for the PESP preparation process at the provincial level. It should conduct more orientation workshops on how to prepare the PESP. MOEYS should review the mechanism, supporting process and coordination of how they respond to the needs of PEOs in terms of the educational planning process and PESP preparation process at the provincial level.

In terms of coordination, consultation and providing support, technical departments and POEs should set a common timeframe for participation and support where MOEYS on the national level consults on the PESP preparation process and assist with some techniques in the PESP process. MOEYS should provide technical support in educational planning

to help the POEs through providing workshop training, orientation and consultations and conducting meetings with PESP teams to improve the quality of the PESP.

MOEYS should review the mechanism, guidelines and framework for providing technical support to assist POEs strengthen their plans at the provincial level. Moreover, MOEYS and POEs should set a schedule and action plan for workshops and/or orientations as well as mentoring, coaching and meeting to discuss the PESP preparation process and any challenges that have been faced in the process.

(3) Planning officers have limited capacity in the use of planning concepts and statistics: POE staff are key for the smooth operations of the PESP preparation process. MOEYS has set up the Capacity Development Master Plan 2011–2015, 2014–2018 (CD Master Plan) with support from the CDPF fund with the objective of strengthening the capacity of officers at all levels. However, there is not yet any CD Master Plan at the POE level for strengthening the capacity development of POE officers. MOEYS and the Department of Planning provided workshop trainings on the educational planning and management to focus on education sector diagnosis (ESD) and statistic and education indicators. The training workshop included content relevant to the analysis and interpretation of the indicators of education statistics, analyzing access to education, internal and external efficiency, quality, and simulation models as designed for the Cambodian context (Cambodia Analysis and Projection CANPRO). The Department of Planning provided orientation to the POE officers in charge of planning and stakeholders involved in education sector at the provincial level on how to prepare the PESP, the AOP, and the BSP for the POEs. However, its officers still have limited capacity in specialized aspects of educational planning and education statistic because of frequent staff turnover, meaning that new staff are often starting while other officers are leaving. Hence, MOEYS and POEs should set up a system for developing human resources to focus on their analysis capacity, educational planning, monitoring and evaluation at the PEO level and develop a comprehensive capacity development master plan for the ministry and provincial levels.

MOEYS should establish an institute for educational planning or develop or upgrade the National Institute of Education (NIE) and the Royal of University of Phnom Penh (RUPP) to be institutes of educational planning to provide academic credits for learners, to improve and strengthen the capacity of officers in educational planning, and to increase

the numbers of officers who have a background in education planning. MOEYS should delegate that NIE or RUPP provide the educational program related to educational planning and management in terms of academic study so that officers can achieve credits to gain a certificate in the field of educational planning and management. DOP should take the roles and responsibilities to conduct further orientation workshop on how to prepare the PESP, AOP, and BSP in actual practice to help POEs to improve their skill and plans. MOEYS has to provide technical support for the Department of Planning to help POEs.

In reality, POEs have a shortage of officers specialized in aspects of the educational planning and management, thus POEs need to improve the capacity of officers to address these challenges by providing workshops, training and orientation on educational planning, statistics and management. For example, in education sector diagnosis (ESD) of Module 4, IIEP 2014/2015 and CANPRO model to assist in the PESP preparation process.

(4). Limited participation from stakeholders involved in ESP preparation: the joint steering committee, the technical working group (officers in each office at POEs) and development partners (NGOs at the local level): The lack of participation and responsibility from stakeholders involved in ESP preparation is a challenge faced in the PESP preparation process. All stakeholders, such as the joint steering committee, technical working groups, officers in each office at POEs, and development partners (NGOs at the local level) are not fully participating in the ESP preparation process. They have other tasks to do that are more interesting. Sometimes, all stakeholders attend meetings but they have no ideas or comments on improving the plan. The secretariat of the POE invited the focal point of the ESP working group to attending a meeting on ESP preparation, but the line technical departments sent other people instead. MOEYS and POEs should motivate staff through awards or incentives to attend the ESP preparation and explain to them the value of ESP for implementation and its links with the budget. Moreover, POEs should encourage development partners at the sub-national level to participate and discuss the issues faced in the education sector.

(5). Frequent turnover of planning officers and a shortage of time for preparation: Staff turnover is a key challenge faced by POEs in the PESP preparation. Every year, staff at POEs move to new places for their work. According to the law on civil service, all public civil servants can change their workplace to other seats. Sometime, staff are moved to

other POE offices or moved to other departments, while others move out of the MOEYS. POEs did not well followed the norm of teacher deployment. MOEYS should consider the mechanisms and procedures in place for staff deployment and should establish a policy and guidelines on staff and teacher deployment. POEs should prepare a procedure for improving the capacity of officers in educational planning to replace the staff that now work elsewhere. POEs should allow staff to sign contracts of employment and follow the civil service law of Cambodia.

(6). Some data are not reliable for minorities group (especially in the plateau and mountain areas) and there is a low capacity to undertake an education sector diagnosis: Some data are not reliable in the high land, plateau and mountain areas. The mechanism of the Education Management Information System (EMIS) department to collect data and information from schools in remote areas, especially in the high land, plateau and mountain, still faces challenges. POEs seem to not fully cooperate with DOEs and schools for data-gathering, in particular from schools in disadvantaged areas. Therefore, MOEYS should strengthen and review the mechanism of collecting data and information from schools. POEs should ensure they cooperate with DOEs and schools to collect information and data to place in the system and submit to the EMIS department. POEs should make a strong commitment to collect data and information from schools in disadvantaged areas. POEs, DOEs and schools should follow the Article 1 of Cambodia's statistics law states that this law aimed at the management which relating to the collection, processing, compilation, analysis, publication and dissemination of statistical data. This law pertains to the whole country, as Article 3 of statistic law states that the statistical development is based on the principles of accuracy, independence, objectivity, reliability, relevance and timeliness.

Conclusion

The ESP development at the provincial level largely followed the guidelines provided by MOEYS, such as PESP, BSP, AOP, and Program Budgeting (PB) for the provincial level. All of these plans must be linked to achieve the policy objectives of the national ESP 2014–2018 and the national strategic development plan (NSDP 2014–2018). However, POEs face challenges in developing these plans. Therefore, POEs need to create a task force and secretariat for PESP preparation, and all staff that are in charge of planning should be trained and oriented on PESP preparation

processes such as Education Sector Diagnosis (ESD) data collection, and the use of the CANPRO simulation model.

MOEYS has encouraged POEs to formulate the PESP at provincial level since 2014 to strengthen the quality of education and administration, to respond to the national ESP 2014–2018, and the NSDP 2014–2018, and to achieve government policy. Therefore, POEs should consider how to prepare their PESPs to run smoothly and to be effective. However, POEs still are concerned about their knowledge concerning the procedure for preparing the education strategic plan at the provincial level, the capacity of planning officers in specialized aspects of planning and statistics, the technical support received from the national level, that some data is not reliable in high land, plateau and mountain areas, and the frequency of staff turnover.

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Article

Four Decades of Teacher Development: Teacher Preparation and Teacher Upgrading Programs in Cambodia from 1979 to 2018

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Abstract

It is universally accepted that teachers' education and performance greatly influence students' learning and growth. Accordingly, the Cambodian government has identified teacher quality as the most significant factor in improving the education system in order to transform the country into an upper middle-income country by 2030 and a high - income country by 2050. Early efforts to implement Teacher Policy Action Plan (TPAP 2015) and other related education reforms resulted in better teacher salaries, increased numbers of potential teacher candidates, improved teacher preparation and teacher upgrading programs and more conducive working environments for teachers. Despite the reform efforts, more than 70,000 teachers still do not have bachelor's degrees and the country's education system faces the challenges to ensure that new teachers meet the bachelor's degree standard. Using cumulative case study grounded in published research and interviews of key informants involved in reform efforts, this paper describes how Cambodian teachers and teacher educators have been prepared and upgraded since the fall of the Khmer Rouge. We identify key challenges to implementing teacher reforms that would improve practices in the system of Cambodian education. Lastly, to channel limited resources into the most effective means for preparing and upgrading the teaching force, we propose three strategies: (1) continue with efforts to upgrade current teacher educators and hold scholarship

recipients accountable; (2) recruit and retrain master degree holders to become teacher educators; and (3) recruit and train new BA/B.Ed. graduates to become teacher educators.

Keywords: Cambodian education; teacher preparation; teacher training education reform

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Introduction:

Since its re-establishment in 1979, Cambodian education system has been through many positive changes. Ever since, the nationwide reforms of curriculum, instruction, assessment, and school leadership and management have resulted in a vast expansion in access, specifically in the basic 9-year education, and a gradual enhancement of quality in teaching and learning in every level of education (MoEYS, 2017). Provided this steady progresses, future of education in Cambodia is likely to journey in the same path of constant growth. This paper is examining this likelihood in details. As acknowledged by the Minister of Education Youth and Sport (MoEYS) in his forewords in the curriculum framework of general education and technical education, strong education system is essential for Cambodian government to realize her plans of being an upper middle-income country by 2030 and a high income country by 2050 (MoEYS, 2016). With this vision in mind, the government has increased the education budget allocation (which is reported to be US\$848 million for 2018; Ben, 2017) and issued the industrial development plan to realize the 2050 economic goals (Council of Ministries, 2015). Through increased education expenditures and reforms, the government hopes to produce engaged, productive, responsible, global citizens who can respond to the social, political, and economic needs of the future (Cambodian Industrial Development Policy, 2015). With better education, the next generation of students must be well-prepared for the challenges it takes to materialize the 2030 and 2050 goals. It is generally agreed that the quality of student learning is largely dependent on teacher quality. Darling-Hammond (2006) has found that, among all education resources, teachers' abilities are the most significant contribution to students' learning achievement. High quality teachers

use effective practices to help students acquire relevant knowledge, skills and valued attitudes (Klecka, Odell, Houston, & McBee, 2009; Darling-Hammond, 1999). The development of these skills requires supported practice and mentorship (Darling-Hammond, 2014).

Methodology

The present study is an exploratory one. It begins with cumulative case studies of Cambodian teacher preparation and teacher upgrading from 1979 to the present. Sources for the cumulative case studies are primarily previous studies and reports from government agencies (i.e., MoEYS, 2015, 2016; Chhinh, Khieu, Chey, & Sot, 2016; Tandon and Fukao, 2015). We augmented published data with additional interviews of key informants through personal communications. We decided to keep the names of these key informants confidential to focus on the points they made which could be sensitive for a few. These key informants served as member checks for the published studies. They also provided additional updated details not available in the previous studies which in qualitatively presented in the paper to support points made. The goals of the cumulative case studies are to illustrate how Cambodian teachers and teacher educators have been prepared and upgraded since early 1980s and to identify challenges of reform efforts. By examining the successes and failures of past practices, we aim to identify the prime key weaknesses in the system so that limited resources available can be strategically channelled to improve the practices in the system of Cambodian education. Particularly, the paper is framed by the following questions: (1) How have Cambodian teachers and teacher educators been prepared and upgraded since the re-establishment of the education system? (2) What challenges has the education system faced?; and (3) What model of teacher education should be considered for more effective teacher education?

Results and Findings

Current State of the Cambodian Teaching Force

Presently, the Cambodian teaching force is arguably inadequate both in terms of numbers and quality as pointed by Tandon and Fukao (2015) in which they posit that Cambodia has one of the highest teacher-student ratios in Southeast Asia. With an annual growth rate of 1.52%, the country has the fastest growing population in Southeast Asia. While the numbers of students entering school each year rises, the supply of new teachers remains static. National data mask the severity of the teacher shortage because there is a large disparity in urban and rural

teacher supply (MoEYS, 2017). MoEYS (2017) also revealed that rural schools have 50% more students per teacher than urban ones. Given that 79% of Cambodia's population is rural, this means most Cambodian children are learning in over-crowded classrooms (World Bank, 2016). In addition to supply and demand issues, Cambodia also faces a critical shortage of highly trained teachers. Before 1997, teachers only needed to attain the grade level they taught (Ayers, 2000). Since the 1980s, the duration and quality of teacher training has gradually increased. For example, previous teacher training schemes have included four months training, seven months training, grade 3 plus one-year training, grade 4 plus one-year training, grade 5 plus three years training, grade 7 plus one-year training, grade 8 plus one-year training, grade 7 plus three years training, grade 10 plus three years training, grade 10 plus four years training, and grade 11 plus one-year training (Chhinh, et al., 2016).

After 1997, significant changes in policy on teacher education have been observed. For instance, all newly recruited teachers have been required to pass grade 12 except those who teach in rural schools. Nevertheless, rural primary teachers have only been required to pass grade 9 before undertaking two years of teacher training (9 + 2). At the same time, lower secondary teachers and urban primary teachers must complete grade 12 before studying for two years at a teacher training centre (12 + 2). In this policy change, only upper secondary teachers are required to complete a bachelor's degree and a one-year post-graduate program (BA + 1) at the National Institute of Education (NIE). As part of the MoEYS latest reform efforts (TPAP, 2015), Cambodia's first two teacher education colleges (TECs), one in Phnom Penh and the other in Battambang, will pilot a new Bachelor level training program for teachers of grades 1 through 9 in 2018 or 2019. As for preschool education, the country's only preschool teacher training centre operates a two-year training program that prospective teachers enter after completing grade 12. The price of so many teacher training formulas is that most teachers possess so many varying levels of qualification, usually lower than the demands for quality education (See Table 1).

Table 1: Teachers' qualifications and places of employment

Place of employment	Educational Attainment						Total
	Primary	Lower Secondary	Upper Secondary	BA/Ed	MA/Ed	Ph.D.	
Pre-school level	181	1,662	2,814	218	2	0	4,659
Primary level	1,104	12,521	28,701	3,585	95	3	46,009
Secondary Level	494	5,084	20,305	14,231	995	12	41,121
Total	1,779	19,267	51,820	18,034	1092	15	92,007
Need to upgrade to BA		79% Yes (72,866)			21% No (19,141)		

Source: MoEYS's EMIS, 2017

Unfortunately, for various reasons including economic and geographic, among all the teacher graduates, the most qualified ones prefer to station in large cities and towns pushing less qualified teachers to rural areas. Not only are older teachers exempt from the new requirements, some have been teaching above the grade level they attained. For example, some teachers have only a grade 9 teaching certificate but are teaching upper secondary classes. Teachers who lack understanding of the content they teach have resorted to didactic approaches that emphasize on teacher control and rote learning. Even when these teachers receive training and support to implement student-centred pedagogies, they have been found to be unable to effectively use these strategies in their teaching (Nith, Wright, Hor, Bredenberg, & Singh, 2010; Dickinson, 2016). Exacerbating problems stemming from lack of training is the low quality of students recruited into the teaching corps (Tandon & Fukao, 2015; MoEYS, 2015). Most teacher trainees only earn grades C, D, or E on the grade 12 national exam (Tandon & Fukao, 2015; MoEYS, 2015). In the past, the poor remuneration, bad working conditions, and low social status of teachers made the profession unattractive to top graduates who opted for more lucrative career paths with greater opportunities for professional growth in Non-Government Organizations (NGOs), Development Partners (DPs)

or private sector (Tandon & Fukao, 2015). The exodus of top performing students into other careers left very few entering the teaching professions, so most teacher candidates were lower quality graduates and rural candidates whose options for other occupations were slim (Tandon & Fukao, 2015).

Conversely, the popularity of teaching profession has significantly grown over the last five years (i.e., 2013-2018). Increasing salary and continuous efforts by MoEYS and relevant stakeholders to ensure preferable working environments and on-going professional supports for teachers are seen as the most influential factors of this change. The number of upper secondary school and university graduates applying to become teachers is observed to be growing annually. With the no cheating policy reinforced in the national exam, the quality of students among those candidates is expected to be higher. In the 2017-2018 academic year, roughly 8,000 BA/Ed applicants applied for the approximately 1,000 upper secondary teacher training spots at the NIE, 30,000 high school graduates applied for the 600 lower secondary teacher training spots at Regional Teacher Training Centers (RTTCs) and 40,000 high school graduates applied for the 1000 spots at Provincial Teacher Training Centers. Given the increasing salary for teachers and other reforms actions, it is highly likely that the number and quality of future teacher trainees will remain constant or even higher. The situation calls for actions to be taken so that previously graduated teacher trainees could catch up with the current trend.

Current Conditions of Teacher Training Centres

Dickinson (2015) unearthed that Cambodia's teacher training facilities were far from being adequate both in terms of facilities and capacity. She also added that the National Institute for Education (NIE) is solely responsible for training upper secondary teachers and is considered one of the best teacher training facilities in Cambodia. Aside from the newly-built building, NIE's classes and administrative buildings are converted from an old secondary school. The Japanese International Cooperation Agency (JICA) converted three NIE classrooms into science laboratory classrooms. However, within a few years after the completion of the program, the laboratory classrooms fell into such disrepair they were deemed unsafe for uses (Dickinson, 2015). Despite having laboratory facilities most NIE science classes meet in traditional classrooms and are taught using teacher-centred and passive-learning methods (Dickinson, 2015).

Extensive high-quality field experiences that align closely with theoretical coursework and include mentoring by experienced teachers and university supervisors are keys to developing successful teachers (Darling-Hammond, 2014). NIE officials indicated that the practice upper secondary school or Anuwat School located on NIE's campus is used by the institute for field experiences, but the field experience only lasts one month which is far less than recommended by research (Darling-Hammond, 2014). Moreover, Anuwat teachers rely primarily on lectures (76.5%) or students working independently at their desks (11.8%) (Dickinson, 2015). Dickinson (2015) also observed that NIE science instructors primarily taught high school level science concepts as opposed to strategies to teach those concepts. Given that NIE is the premier teacher training centre in Cambodia, the way instruction is provided at NIE could be improved in many ways. For example, the emphasis should not be too much on low-level content, but instead pedagogy. Also, there should be actions taken regarding the lack of field experiences for NIE students. Similarly, Tandon and Fukao (2015) observed that the "teaching and learning environment in the average TTC is teacher-centred and far from interactive, raising concerns about instruction quality" (p. 57). The concerns were also raised by MoEYS (2015) and Chhinh, et al. (2016). Both reports called for improving quality of teaching and learning at Cambodia's teacher training centres.

In addition to underperforming infrastructure, NIE's training facilities personnel and budget were found to be limited to meet increasing needs for new teachers. Each year around 10,000 students apply to NIE for about 1,000 available slots. With a 1.52% annual growth rate, the numbers of secondary teachers is predicted to grow accordingly. Currently, lower secondary student dropout rates at grades 6 and 9 keep the demand for upper secondary teachers low. However, if the MoEYS achieves its objective of keeping students in the system longer, the 1000 new upper secondary teachers produced annually by NIE will be insufficient to meet demands of growing enrolment. Similar to other countries in Organization Economic Cooperation and Development (OECD), Cambodia is desperately in need of enough teachers who are capable of developing expertise, sharpening transference or teaching delivery skills, exercising creativity and enhancing versatility to meet individual students' needs and achieve the institutional goals (Schleicher, 2012). There is growing empirical evidence showing that teachers who have vast knowledge of teaching and learning are more effective with students, specifically with work demanding higher order thinking and problem solving (Darling-Hammond, 1999). Darling-Hammond (2000) advocated that better prepared teachers have more confidence and success than those who have no preparation or are ill-prepared. At this time, the greatest challenges to Cambodian teacher quality are to ensure transparent and fair selection processes at teacher training institutions, to strengthen the ability of Cambodia's teacher education

providers to provide good quality of training for new teachers, and to support and develop teachers well once they work in the system.

Recent Educational Reforms

It is evident that the current teacher training requirements are undeniably lower than other countries in the region and poorer than other professions in the country (Tandon & Fukao, 2015). The consequences of inadequate teacher preparation on student achievement are glaring. Students from primary and lower secondary levels perform poorly in important subjects such as Khmer, Mathematics and Physics (See Table 2). Moreover, only about 50% of grade 12 students passed the national exam from 2014 to 2016 (MoEYS, 2016).

Table 2. Results of student assessments in grades 3, 6, 8 and 12 nation-wide.

Subject	Year	Grade	Percentage of Correct Answers
Khmer	2015	6	43.4
Khmer Reading	2016	3	42.5
Khmer Reading	2015	8	73.8
Khmer Writing	2015	8	28.3
Mathematics	2015	8	44.0
Mathematics	2015	6	41.0
Physics	2015	8	52.8
Grade 12 Exam	2014 – 2016		50.8

Source: MoEYS-EQAD, 2015, MoEYS, 2014-2016

In 2010, MoEYS adopted teacher standards that included four domains: teacher content knowledge, teacher practice, professional learning and ethics. Yet in 2015 nearly one third of RTTC teacher trainers and over 50 per cent of Provincial PTTC teacher trainers were unaware of these standards (Tandon & Fukao, 2015). Not surprisingly, less than 10 per cent of RTTC and PTTC trainers indicated that they used the national teacher standards in their lessons. Tandon and Fukao (2015) noted that, “There is a major disconnect between the MoEYS teacher training

goals, the stated curricular guidelines, and what is happening in TTC classrooms” (p. 50). In 2016 the MoEYS developed a new curriculum framework that emphasizes on higher order thinking rather than rote memorization (MoEYS, 2016). This requires teachers to have greater content knowledge as well as increased pedagogical skills. This new curriculum framework imbues students with eight core competencies: (1) literacy and numeracy, (2) foreign languages, (3) information and communication technology, (4) communication and teamwork, (5) analysis and creativity, (6) applying knowledge and skills, (7) personal, family and social development, and (8) entrepreneurship and leadership. The goal of the framework is to bring the quality of Cambodian education up to the standards of other ASEAN countries, so Cambodia can compete economically in the region. Given the past failures of meeting the required teaching and learning standards, concerns that teachers will continue to lack the skills necessary to implement the new curriculum remain (Benveniste, Marshall, & Araujo, 2008; Tandon & Fukao, 2015; MoEYS, 2015).

Reforms Targeting Teacher Quality

Teacher quality is the key driver for student learning. Several research studies both in international and local contexts have already suggested that the increase in teacher education and experience results in a significant growth in students learning achievement (Darling-Hammond, 2002; Schleicher, 2012; Tandon & Fukao, 2015; Chhinh, et al. 2016). To improve the quality of teaching and learning at schools, MoEYS has planned to upgrade many basic education teachers to new higher standards that require a minimum of a grade 12 certificate plus four years of training (12 + 4) or a BA plus one year for lower secondary teachers to a BA/B.Ed. plus two years or MA plus one year for secondary teachers (MoEYS, 2015). Presently, 72 ,866 teachers (79 % of the teaching force) hold qualifications below a BA equivalency (MoEYS, 2017) (See Table 3).

The current increase of teachers completing the BA slightly exceeds 2% annually, signifying that without a strong policy intervention, the number of teachers with BA qualifications will reach only 28% by 2020. Compounding the problem, for each year the MoEYS fails to implement a 12+4 training requirement for teachers at all levels, the number of teachers who lack BA/B.Ed. degrees will increase by around 1500 annually. Therefore, ensuring opportunities for as many teachers as possible to obtain a BA equivalency is one of the most urgent mandates for pre-service and in-service training (MoEYS, 2015). Cambodian teachers are hired centrally and assigned to schools by the MoYES. Over 90,000 teachers presently work in the system, among which approximately 5% teach in pre-schools, 50% teach at primary schools, and 45% teach at lower and upper secondary schools

(MoEYS, 2017). Annually more than 2,000 teachers leave the profession and only 5000 teachers are recruited and trained to work for the system (MoEYS, 2015). The net gain of teachers is not nearly enough to serve a young population that is rapidly growing.

Table 3: Trend of teacher education models

School Teaching level	Teacher Education Model		
	The Past (before 2015)	The present (2015–2020)	The future (after 2020)
Upper secondary	BA/Ed + 1 year at NIE	BA/Ed +1 year at NIE	BA/Ed + 2 years at NIE or MA/Ed + 1 year at NIE
Lower secondary	Grade 12 + 2 years at RTTCs	Grade 12 + 4 years at TECs or Grade 12 + 2 years at RTTCs	Grade 12 + 4 years at TECs or BA/Ed +1 year at TECs/ Universities
Primary	Grade 12 + 2 or 9+2 at PTTCs	Grade 12 + 4 years at TECs or Grade 12 + 2 years at PTTCs or	12+4 or BA/Ed +1 at TECs or BA/Ed +1 year at TECs/ Universities
Pre-school	12+2 or 9+2 at Pre-School TTC	12+2 at Pre-School TTC	12+4 o at TECs or BA/Ed +1 year At TECs/Universities

Source: Authors' projection

Chhinh, et al. (2016) have asserted that to achieve the goal of upgrading teacher qualifications and enhancing the quality of school teachers for the nation, MoEYS first needs to upgrade Teacher Education Colleges and Teacher Training Centres. Accordingly, beginning in 2018 with pilots in Phnom Penh and Battambang, the MoEYS Teacher Policy Action Plan set the goal of upgrading all Teacher Training Centres (TTCs) to become Teacher Education Colleges that will provide four-year teacher education programs by 2020. To address issues of teacher low qualifications, MoEYS has exerted considerable efforts to upgrade educators at all levels in the system. MoEYS has implemented programs to upgrade current teachers to the BA/B.Ed. level and teacher trainers to the MA level.

Efforts to upgrade secondary teachers to the BA level

According to an interview with a key informant from Teacher Training Department (TTD), in 2015 approximately 2,700 upper secondary teachers lacked bachelor's degrees. MoEYS along with the Ministry of Finance and Economics (MoFE) and the Ministry of Civil Services (MoCS) initially proposed a four-year project (2016-2019) to upgrade these teachers to a bachelor level and provide them with a commensurate pay increase. The proposed program would upgrade under-qualified teachers in three cohorts: 700 teachers in the first cohort, 1,000 teachers in the second cohort and 1,000 teachers in the third cohort.

NIE Upgrading Program. In 2016, NIE piloted a fast-track BA upgrading program for the first cohort. Trainees were required to complete roughly 60 credits over two years' period. However, the actual training took place during the three-month school vacations for a total of six months of class time. In order to materialize roughly 60 credits in six months, NIE scheduled back-to-back classes for eight hours per day from Monday through Saturday. This gruelling schedule exhausted both teacher trainers and trainees. Comparatively, it is worth noting that Cambodian university students usually take 15 credits per 16-week semester to attain 30 undergraduate credits per year. Awarding 60 credits in six months of intensive training raises serious concerns about the quality of the program. Even so, 698 out of 700 teachers from the first phase successfully graduated from the NIE program.

Alternative Upgrading Program. In latest development, MoEYS has awarded a five-year contract to RUPP to upgrade 2200 teachers. RUPP has started the upgrading B.Ed programs in six prioritized subjects: Khmer, History, Math, Physics, Chemistry and Biology. Unlike the program offered by NIE, teachers who graduate from the RUPP's upgrading program are not guaranteed salary increases nor changes of civil servant status from B to A. Also, unlike the NIE program, the RUPP program is a highly collaborative one. RUPP's faculties of Education, Science and Humanities, and Social Science, the MoEYS Teacher Upgrading Program (TUP), and the World Bank worked together to design a needs-based program. The first cohort of the target teacher trainees have been trained and the second one is being recruited and trained in early 2019. In Cohort 1, RUPP have been training 215 teachers on campus in Phnom Penh. In Cohort 2, 841 teachers are expected to be trained. The remaining teachers are expected to be trained by both RUPP and TECs. Based on the training proposal, the teacher trainees will need to study 60 credits within 18 months to obtain their BA/B.Ed. from the fast-track program at RUPP and/or TECs. The training is a dual program requiring teacher trainees to teach at their school on weekdays and study at RUPP and/or TECs on weekends. While the workload is high, it is not unmanageable. Time has been carefully planned for digestion and reflection on content taught. Moreover, practicing teachers can implement ideas in their classrooms, reflect on their teaching and receive feedback from their instructors at the same time. This aligns with Darling-Hammond's (2000) recommendation that teacher preparation programs should follow an integrated model of theory and practice similar to medical students' preparation. Integrating field work with coursework allows teacher trainees to enact their training in a supportive environment that provides feedback and the opportunity for revision. This integrated approach, known as a residency model, holds the most promise of producing teachers who are effective in helping students learn and who are more likely to enter and remain in teaching profession

According to the agreed program, RUPP's Faculty of Education is entitled to offer six pedagogical courses for a total of 35% of the program. These courses include peer teaching, field-based assignments, and reflection on practices. The goal is to provide support for teachers to implement new pedagogies, so they develop into reflective practitioners capable of implementing reforms. The Faculty of Education will also teach three research courses that culminate in an action research project (20%). Other faculties in the teacher's content areas will each provide the remaining 45% of the course work. Efforts have been jointly invested to ensure that the program offered by RUPP bring about highest quality in teacher trainees. The success of the pilot program will lead to the sustainability of next B.Ed upgrading program project. However, the large scalability of the future program

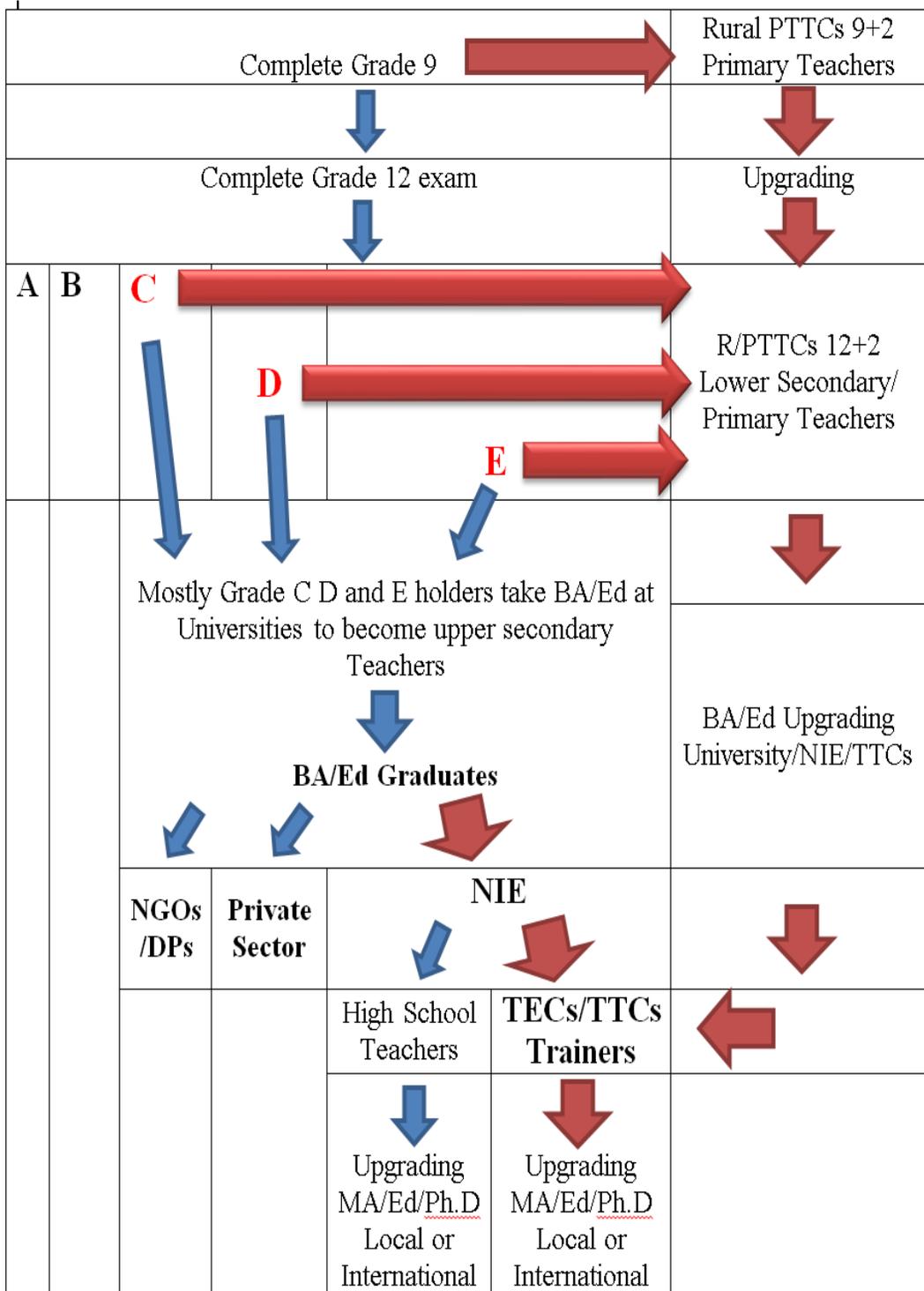
project will be enormous challenges for RUPP alone, given the fact that the three responsible RUPP faculties (Education, Sciences, Social Sciences and Humanities) have to run the existing undergraduate, graduate and post-graduate programs which are highly expected to grow and expand constantly. Besides, the three faculties also have ambitions to represent RUPP to implement other completely innovative programs from bachelor to doctoral levels, not to mention on-demand short courses that research has proved to be most professionally practical.

Consideration is in place for other lower secondary school teachers teaching other subjects. The management teams at TTDs and MoEYS also have a plan to upgrade the teachers in English Language, Moral-Civics, Geography and Earth-Environmental Science. If there is sufficient financial support, approximately 200 teachers from the four subjects can enter fast-track BA programs at the new TECs, NIE, or even RUPP every year. Similar to the upgrading at NIE and RUPP, the teachers will need to successfully acquire around 60 credits from this training regardless of their prior learning recognition. Nevertheless, to date, it is unclear that upgrading program in a planning process will replicate the NIE or RUPP training models or develop an entirely new one. It is worth noting that although a link of a qualification upgrading program to an increase of salary scale is sceptical at the present time, most teachers still express a strong interest to participate in the upgrading program.

MoEYS' plans to upgrade the teaching force rely heavily on qualified teacher educators. However, like the teachers who need upgrading, many teacher educators are under-qualified. As in the case of teacher training, the requirements for teacher educators have increased over the years. Initially some secondary school teacher trainers completed grade 12 and further completed two years of additional training. Some primary teacher trainers completed grade 9 and then completed two additional years of training. Current MoEYS regulations stipulate that teacher educators be master's degree qualified (See Figure 1). Tandon and Fukao (2015) found that the average RTTC trainer completed 16.5 years of schooling and the average PTTC trainer completed 14.7 years. The total number of years of schooling is deceptive because 46.6% of the RTTC trainers and 45% of the PTTC trainers failed to complete high school. Moreover, only 11% of RTTC trainers and 22% of PTTC trainers received training beyond their initial teacher training MoEYS has offered ambitious training programs to upgrade the qualifications of limited numbers of teacher educators. Others have continued their education at their own expense earning a bachelor or master degrees through private institutions. While self-funded study should be rewarded, the quality of the

private training is arguably questionable as there are no credentialing requirements for university programs. RTTC teacher trainers are particularly critical of the quality of their training with only 24% of them ranking their training as “very good” (Tandon & Fukao, 2015). Both RTTC (73%) and PTTC (61%) trainers believe their training is inadequate (Tandon & Fukao, 2015).

Figure 1: Pathways for preparing and upgrading TEC/TTC teacher educators from 1997 to 2018



While many countries recruit their best teachers to work in teacher training colleges, in Cambodia teacher training is viewed as less attractive than teaching. Successful NIE graduates can earn significantly more income teaching at high schools than working as teacher trainers at one of the R/PTTCs because high school teachers can easily tap into the lucrative market for private tutoring. Additionally, the teacher deployment policy tends to favour top performing graduates since it allows them to choose where they teach. Presently, the majority of R/PTCCs teacher educators have bachelor's degrees. Some have managed to earn master's degrees but mostly in different majors from their undergraduate degrees. In order to achieve the MoEYS goal of transforming the Phnom Penh and Battambang teacher training centres into colleges, about 70% of the teacher educators need to be upgraded to a master's level (Chhinh, et al., 2016). It is worth mentioning that the teacher training centres in Phnom Penh and Battambang are known as the best in the country, so this implies a more urgent situation at the other R/PTTCs. The under supply of high quality of teacher educators at teacher education colleges (TECs) and TTCs has led to an overload of instructional and administrative work as well as a high rate of out-of-area teaching (Chhinh, et al., 2016). This can be implied that students' learning needs have not satisfactorily met.

Initial MoEYS Teacher Trainer Upgrading Efforts

In 2015, MoEYS selected Khemarak University (KU) to provide a three-semester master's degree program for RTTC STEM teacher educators. UNICEF sponsored 61 teacher trainers with tuition scholarships and travel stipends. MoEYS selected the participants but did not reveal selection criteria. Supposedly, the participants represented the top teacher trainers in Cambodia. It was later revealed that KU admitted an additional 16 fee-paying students, making the number of teacher to be upgraded to MA stood at 77. Classes met all day on Saturdays and half day on Sundays in a five-story office building that lacked laboratory spaces. The program lecturers largely came from other universities in Phnom Penh. Less than one third of the faculty were listed as KU faculty. Only 6 of the 17 of the program faculty held Ph.Ds. and one was in an area unrelated to the subject taught. As generally observed, nearly half of the faculty worked full-time at RUPP. An early program review by UNICEF found that the program relied entirely on lecture and included no pedagogical training. The content courses focused entirely on theoretical knowledge with little application to real-world problems. At UNICEF's insistence KU added a pedagogy course beginning in the second semester of the program. This course was taught in the last teaching 90-minute slot on Saturday afternoons by an American science education professor

and a translator. Each class included a 5-E model lesson intended to highlight different aspects of inquiry in the content area

Dickinson (2016) identified three issues with the KU program: (a) lack of basic conceptual understandings within content areas, (b) inability to apply memorized facts, and (c) administrator misperceptions of inquiry science. Although students were receiving master's degrees in their content areas, they struggled with grade 7-12 STEM concepts. Participants demonstrated such low levels of prior understanding that class discussions focused on learning the topics rather than understanding the pedagogy. During the third semester of the program, participants worked in teams of two or three to write 5-E lessons using Volunteer Service Overseas (VSO) STEM activities. VSO developed, translated, and field-tested inquiry STEM activities aligned with the Cambodian national curriculum. They have trained over 3000 Cambodian teachers on how to use them. VSO confirmed that none of the teacher trainers had participated in their workshops, so the activities were new to all the participants. Despite breaking the process down into segments with feedback and revision after each one, only two groups successfully produced an inquiry lesson. UNICEF insisted on an attendance requirement for completion of the program. Twenty-two of the 61 UNICEF-sponsored students failed to meet the attendance requirement and should not have completed the program (See Table 4). The high failure rates due to attendance speak to an issue of commitment on the teacher trainees' parts.

Table 4: Attendance rates for teacher trainers in KU Master's program.

	Number of sponsored students failing to meet minimum attendance requirement	Total UNICEF-sponsored students in that field	% sponsored students failing attendance requirement
Biology	3	14	21.4%
Chemistry	7	13	53.8%
Mathematics	5	20	25.0%
Physics	7	14	50.0%

There is no indication that attainment of the master's degree depended on academic qualifications. Since KU students lacked understanding of even the most basic concepts, it is unlikely that course examinations tested for anything other than rote memorization of facts and formulas.

RUPP Teacher Trainer Upgrade Master's Program. RUPP has been currently working to design content-specific master's programs that target the specific needs of teacher educators. Noting that many teacher educators still have weak understandings of basic content, master's students will be required to complete the required courses in their disciplines. These courses will emphasize on deepening the knowledge of the concepts in the national curriculum and will include laboratory components. The remaining education courses will prepare them to be curricular leaders. These courses include foundation of education, curriculum design, assessment, action research, and applied research. In keeping with research findings on effective programs, the RUPP program will include supervised teaching opportunities. Masters students will engage in peer teaching in their content classes as well as field-based teaching experiences in their education classes. The purpose of field-based teaching is to provide teacher trainers with supervised experiences that they missed in their own training while also providing training for classroom teachers who observe the teacher trainers in the field. RUPP anticipates recruiting the first cohorts in by mid-2019.

Implication for Policy and Planning

Since 2014 MoEYS has undertaken an ambitious agenda to address the daunting shortcomings of the educational system. Those efforts include strict supervision to eliminate cheating on the national grade 12 exam, improving school infrastructure and facilities, increasing teacher salaries, recruiting and training new management teams, revising the national curriculum, developing a strategic plan, upgrading teachers and upgrading teacher trainers. While MoEYS has made impressive progress on its strategic plan, much remains to be done. The lack of highly qualified trainers is crippling MoEYS efforts to build a competent teaching force which in turn is hampering efforts to improve the quality of education for Cambodia's children. Therefore, MoEYS should focus its attention on developing sufficient numbers of teacher educators through quality graduate programs so that teacher training centres can be converted to teacher education colleges that can award undergraduate degrees. Currently NIE and RUPP lack sufficient staff to offer enough slots for both initial certification and retraining efforts. As the student

population grows, the limited slots for initial teacher training and retraining becomes ever more critical. We propose three strategies to efficiently respond to the pressing demands of Cambodia's teacher education reforms: (1) continue with efforts to upgrade current teacher educators and hold scholarship recipients accountable; (2) recruit and retrain master degree holders to become teacher educators; and (3) recruit and train new BA/B.Ed. graduates to become teacher educators.

Continue Teacher Educators Upgrading Efforts and Hold Scholarship Recipients Accountable

In the past MoEYS has exempted practicing teacher educators from new requirements. While some have undertaken self-funded training at private, non-credentialed universities, most have relied on paid programs sponsored by MoEYS and NGOs. While most trainers lack the required degrees, many have degrees with little meaning to it. Generally, the degrees were obtained from universities whose programs were of questionable quality. We believe three strategies are necessary to address these problems: (1) make continued employment at TTCs and TECs contingent upon obtaining a Master's degree in a relevant subject from an accredited program; (2) provide financial and logistical supports for teacher educators to obtain quality graduate degrees; and (3) require universities providing graduate teacher educator programs to show evidence of curricular coherence and relevance, practical and meaningful field experiences, and research-based instructional practices that enhance student learning. While it is laudable that MoEYS has honoured the efforts of under-qualified teacher educators, it is time to enforce the current requirements. The national education budget is insufficient for supporting non-productive personnel in leadership positions. Teacher trainers who lack proper credentials hamper reform efforts and take spots that could be filled by more competent personnel who are better able to make significant contributions to MoEYS teacher reforms.

However, without fiscal and logistical support from MoEYS and relevant stakeholders, teacher educators will face serious challenges to completing quality graduate degrees. Most teacher educators are unable to fund their own studies. MoEYS need to offer sufficient scholarships and stipends to teacher educators so completion of the graduate programs is feasible. Likewise, during their study, some of their teaching workload and administrative tasks need to be appropriately reduced to provide adequate time for their studies. By so doing, the quality of learning can be enhanced, and teacher educators will view their training more positively. In the past, there was no accountability for teacher educators who

received scholarships. MoEYS should demand that scholarship recipients apply themselves to their studies and make continued support contingent upon attendance and grades at the end of each semester. Students failing to attend class and/or receiving failing grades should have their financial support rescinded and they should be dropped from the graduate program. Moreover, those students who have financial support rescinded should be ineligible for future government scholarships. MoEYS should also attend to the quality of graduate programs targeting teacher educators. Only local educational institutions that have already been accredited by Teacher Education Provider Standard (TEPS) or prestigious public universities that have been actively involved in the process of designing upgrading schemes with MoEYS should be entitled to offer the 60-credit master's program for teacher educators. MoEYS should review programs to ensure that faculty are qualified to teach the content and pedagogy courses and to ensure that programs enact best practices for teacher training.

TEC and RTTCs should identify the most talented teacher educators for graduate study abroad. Having some foreign-trained teacher educators at each campus will greatly enhance the chances for in-house professional development as new ideas and methods are brought back from abroad and contextualized. MoEYS should seek financial support from development partners and other government ministries to offer scholarships for graduate study abroad. These scholarships should be offered on a competitive basis with clear selection criteria based on individual merit and motivation. Selection process for scholarship must also reflect key principles of transparency, equity and fairness. It is vital that any graduate degree program for teacher educators be customized for their needs regardless where it happens. Simply put, teacher educators need to acquire knowledge, skills and experiences that are contextualized to Cambodian setting. For example, some part of the coursework should focus on how to provide student-centred lessons in under-resourced schools, how to identify and help special needs students, and how to help students who are under-prepared. Teacher educators should be strongly encouraged to express their thoughts about the applicability of graduate coursework to the Cambodian context.

Recruit and Retrain Master's Degree Holders to Become Teacher Educators.

There are many master's degree holders with expertise related to education. Annually, the Royal University of Phnom Penh produces more than 100 MA/Ed graduates and many more Cambodians obtain master's degrees from other universities. Some of these graduates also have formal training from NIE and/or a few years working experiences as school teachers or university lecturers. While many of these graduates have developed strong content knowledge, they still have limited pedagogical knowledge and require further training. Darling-Hammond

(2000) pointed out that even the top performing graduates who are passionate for teaching do not easily succeed in teaching without thorough and adequate preparation. We recommend bringing these graduates up to speed with a one-year clinical residency program that combines field work, mentorship, and concurrent coursework. Education courses should include foundation of education, curriculum development, content-specific pedagogical methods, individualizing instruction for special needs, and classroom assessment. Each student needs to be assigned to work with a highly qualified teaching mentor. These mentors should be recruited and trained by university faculty, so the field experience aligns with coursework in terms of pedagogical paradigms and learning theories. Working as an observer and later as a teacher at schools for the first semester gives residents enough time to learn about school culture, student characteristics and the actual working environment of school teachers. During the second semester, residents assume full teaching duties. Mentors and university faculty observe residents' lessons and provide constructive feedback. They also encourage residents to develop habits of reflection on student learning. Residents compile exemplars of lesson plans, student work, personal reflections and feedback into a portfolio which serves as the final assessment for the program. This one-year program for master's degree-holders to become teacher educators is less expensive and can be done in a shorter time than many of the upgrading schemes for current teacher educators. While a one-year residency is insufficient to develop full expertise in pedagogical content knowledge, this program could fill a desperate need for teacher educators with strong content knowledge. Moreover, teacher educators with strong content knowledge and pedagogical training are more likely to be able to develop student-centred teaching materials than those with weak content knowledge.

Recruit and Prepare New BA/B.Ed. Graduates to Become Teacher Educators.

Among the three solutions suggested, recruiting and preparing new BA/B.Ed. graduates to become teacher educators is the most likely to ensure the sufficient number of high quality teacher educators. Every year thousands of BA/B.Ed. graduates are interested in becoming upper secondary teachers. We envision recruiting 100 BA/Ed graduates annually into a highly competitive, three-year master's program. The program will be structured as three stepping stones namely, getting a teaching license (in stage/year 1), earning a master's degree (in stage/year 2) and a supervised internship as teacher educators at a TEC or TTC (in stage/year 3). The teacher licensure segment of this program will follow the same residency model as the one proposed for master's degree holders. The second year of this program will offer more advanced coursework in pedagogy, curriculum design, and working with diverse learners. Master's level courses will include field work so that students can further develop practical expertise by applying the theories and

strategies they are learning in real-world contexts. During their third year, students will intern at one of the TECs or TTCs. During their internship, students will co-teach with experienced teacher educators and will learn observational and management skills from their mentors. Throughout this training program, candidates will develop their four main competencies: (1) pedagogical content knowledge, (2) general pedagogical knowledge (3) 21st century skills and (4) research skills. This longer and more rigorous training is the most effective method to increase teacher confidence and efficacy as well as increasing the likelihood that they enter and stay in their teaching career (Darling-Hammond, Chung & Frelow, 2002).

In contrast with previous upgrading attempts, rigor is necessary for all of these three recommended strategies. Candidates should not receive passing marks because they signed up for a course or even because they attended classes. Success or failure should depend on the work produced by the candidate. Consequently, some will fail. The three-step approach allows unsuccessful students to exit with some benefits. Those students who fail to meet requirements to continue on to year two, exit the program with a teaching license. Those who fail to meet the standard for an internship at a TEC may receive a master's degree. Those who fail to successfully complete their internship also fail to gain civil servant status needed for full employment at the TECs.

Concluding Thoughts

The above three solutions can ensure sufficient numbers of qualified teacher educators at each of the TECs and TTCs. Increasing capacity of the TECs and TTCs is essential for MoEYS efforts to upgrade the more than 70,000 teacher who lack the current credentialing requirements. The ministry cannot afford to support these teachers travel to a few select cities to upgrade their training. Nor is it practical for these seasoned teachers to leave their homes for extended training. Additionally, NIE lack the capacity to add enough slots to fill initial teacher training needs. TTCs and TECs with qualified staff are desperately needed to fill the gap in initial teacher training. Without sufficient numbers of these qualified teacher educators it is impossible to enact the new 12 + 4 initial teacher training requirements in the near future. Each of the proposed strategies has pros and cons. Continuing the MoEYS efforts to upgrade current teacher trainers taps into a pool of experienced teacher educators. This strategy gives the most continuity at TTCs and TECs by maintaining and improving the existing staff. However, given the wide range of qualifications and limited leadership experience of the existing staff, this method fails to tap into a larger talent pool. It is also very difficult to ensure the quality of upgraded teacher trainers because many lack requisite content

knowledge to capitalize on the training opportunities. Recruiting existing master's degree students is the least expensive option and only requires one year but many will still be novice teachers at the completion of their training. Recruiting BA/B.Ed. graduates holds great promise because these students are competent in their subject areas and the program is structured so that the strongest candidates rise to the top level, but less qualified candidates still earn marketable credentials. The longer training period allows candidates to develop more expertise but also requires more commitment and funding. This route is also the most administratively complex because it requires coordination between universities, TECs/TTCs, schools, MoEYS and the Ministry of Civil Servants.

All of these proposed solutions require strong commitment from all parties. Potential teacher candidates are being held to much higher standards. To retain these more highly qualified professionals requires transparent recruitment and promotion, competitive salaries, functional, progressive and supportive working conditions and improved social status. Research indicates that many teaching professionals are willing to work for lower salaries than industry provides if their working conditions are good. There is a high risk that well-trained teacher educators will leave the profession if working conditions become unfavourable (Darling-Hammond, Chung & Frelow, 2002). Given the large investment in upgrading teachers and teacher educators, MoEYS should also consider implementing an accountability system for administrators. MoEYS has already accomplished important reforms. In a country with such limited resources, we believe that recruiting and training additional qualified teacher educators is the most strategic use of those resources. With highly trained and committed teacher educators, Cambodia can improve the education for all Cambodian children. This will expand economic growth so more Cambodians can benefit socially, and the 2030 and 2050 goals can be materialized.

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