

English Language Teaching, Education, and Online Learning in Cambodia during COVID-19

**Perspectives from Practitioners and
Researchers**

**Edited by
Kimkong Heng
Sopheap Kaing
Vutha Ros
Koemhong Sol**

**CAMBODIAN
EDUCATION
FORUM**

A forum for education

English Language Teaching, Education, and Online Learning in Cambodia during COVID-19

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Vutha Ros, and Koemhong Sol

វេទិកាអប់រំកម្ពុជា

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Preface

This edited volume represents our humble attempt to put together all the articles that Cambodian Education Forum (CEF) has published since July 2020 when the CEF website was launched. Since we did not require the contributing authors to write on a particular topic or follow specific writing styles, the articles that they submitted to us varied considerably in terms of topics and formats. Fortunately, despite the diversity in topics, we were able to compile 21 articles and grouped them into four parts for republication in this edited book.

We will put together other articles that CEF publishes into another edited volume in the near future. The aim is to contribute to promoting research, writing, and publication in Cambodia, particularly research and publication from young or novice Cambodian writers and researchers.

We acknowledge our limitations in both editorial expertise and copyediting skills. Although we have tried to edit and proofread this book many times, we do not expect it to be flawless. Any remaining errors are of course ours. However, we will continue to put in our best efforts to improve the quality of all CEF publications. This is our first edited volume, so we look forward to any constructive feedback that may enhance the quality of our collaborative works in the future.

We hope our efforts and commitment to foster and promote a strong research and publication culture in Cambodia will have a positive impact on the interest and attitudes toward research and publication in Cambodian society. We also hope that our work will inspire other Cambodians, especially young and emerging writers and researchers, to increase their research and publication activities and maximize their contribution to building a vibrant research culture in Cambodia.

Acknowledgments

We would like to thank all the people – contributing authors and reviewers, including anonymous reviewers – who helped make this book possible. Without them, the idea for this edited volume would never have been put into action.

Each of us would also like to acknowledge the financial support of our scholarship sponsors, including Australia Awards (for sponsoring Kimkong Heng), Swiss Government Excellence Scholarships (Sopheap Kaing), HKU Postgraduate Scholarship (Vutha Ros), and Japanese Government (MEXT) Scholarship (Koemhong Sol). Without the generous support of these sponsors, we may not have the time and resources required to complete this book.

Kimkong Heng, Sopheap Kaing, and Vutha Ros would like to thank Dr. Sokphea Young for bringing the three of us together to speak at a roundtable discussion hosted by his Cambodian Scholars Network, which provided us with an excellent opportunity to collaborate and embark on the founding of Cambodian Education Forum, which later made the writing and publishing of this book possible.

Finally, we are grateful to our families for their love, support, patience, and understanding throughout the preparation of this edited book.

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Notes on Cambodian Education Forum

Cambodian Education Forum (CEF) was co-founded on 01 July 2020 by a group of three emerging Cambodian scholars (Kimkong Heng, Sopheap Kaing, and Vutha Ros) who aspire to promote education research and publication in Cambodia. The common vision is to provide platforms for Cambodian researchers, educators, teachers, students, and administrators, especially novice and emerging writers, to express their views and share their perspectives and understanding on topics relevant to education in Cambodia and beyond.

CEF strongly believes that Cambodian students, teachers, and researchers have a wealth of knowledge and perspectives to share in shaping understanding, beliefs, and attitudes regarding education-related issues confronting Cambodia and other countries in the region and the world.

Although the focus is on education in Cambodia, CEF welcomes and publishes unsolicited opinion pieces or research articles on educational issues facing countries in the region and beyond.

CEF's main aims are as follows:

1. To provide a publication platform for Cambodian researchers, educators, and students
2. To share knowledge and informed opinions about education in Cambodia
3. To support Cambodian novice writers to publish through peer review, mentorship, and editorial processes
4. To publish essays, opinion pieces, and research articles about education in Cambodia and beyond
5. To offer insights from education experts through interviews, discussion, and publication

6. To share education-related resources with students, teachers, academics, and researchers
7. To promote Cambodian image in the regional and international arena

CEF is still under development, but the vision behind this initiative is ambitious and inclusive. We seek to promote research and publication in Cambodia, particularly those conducted by Cambodians.

We are currently seeking funding, sponsors, donors, and volunteers to maintain and sustain this platform to offer common benefits to diverse users such as learners, teachers, educators, and researchers.

We start as a small team, aim high, and aspire to make a positive impact on the education sector and the research and publication culture in Cambodia.

We believe each Cambodian has a vital role to play to shape and improve Cambodian society and raise its image on the global stage.

We start small, aim big, and aspire to create a real impact.

1. Introduction: The need to promote a strong research and publication culture in Cambodia

Kimkong Heng

The University of Queensland

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International Christian University

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Vutha Ros

The University of Hong Kong

Introduction

Cambodia has made considerable economic growth over the last few decades, enabling it to become a lower-middle income country in 2015 when its GNI (Gross National Income) per capita for 2015 reached \$1,070 (Ly, 2016; World Bank, 2018). In 2017, Cambodia's GNI per capita was \$1,230, and in 2019, it increased to \$1480 (Macro Trends, n.d.). As Cambodia aspires to become an upper-middle income country by 2030 and a high-income economy by 2050, it needs to maintain its sustained economic growth and increase its GNI per capita to at least \$3,896 to attain an upper-middle income status and at least \$12,056 for a high-income country status (see World Bank, 2018).

Considering its sustained economic growth, Cambodia may be able to attain this long-term vision; however, the prospects for reaching these income thresholds are constrained by numerous barriers, including a limited supply of highly skilled workforce and limited research and innovation capacity. This is

not to mention the profound effects that the COVID-19 pandemic has on the country's economy, forcing it to experience the slowest growth rate since 1994 (World Bank, 2020).

No doubt, there are many things Cambodia needs to do to bounce back better in the post-pandemic world. Nevertheless, to increase its competitiveness and enhance its relevance in a knowledge-based economy, both in the region and beyond, Cambodia has to reimagine its development vision, seek innovative ways to upgrade the quality of its education system, accelerate instructional and curriculum reforms, and foster the development of a vibrant research and publication culture.

Cambodia's research performance in the regional context

Cambodia has experienced a terrible recent past. It was engulfed in prolonged civil wars and went through one of the most tragic periods in its modern history. The country was under the genocidal Khmer Rouge regime (1957-1979), resulting in the death of up to two million people, or almost a quarter of its population at that time (see Tyner, 2017; Zimmer et al., 2006). The regime, moreover, oversaw the destruction of almost all aspects of Cambodian society in an attempt to transform the country into a pure agrarian society (see Ly, 2019). After the collapse of the Khmer Rouge, Cambodia has started from scratch; thus, the development of everything, including its education system, is relatively recent (see Ayres, 2000; Duggan, 1997; Un et al., 2017).

At present, there are 125 higher education institutions (HEIs) in Cambodia, 77 (about 61%) of which are privately owned (Ministry of Education, Youth and Sport [MoEYS], 2019). None of these HEIs are listed in Times Higher Education's 2020 World University Rankings, while Cambodia's neighbors have between three (Vietnam) and 16 (Thailand) universities listed in the Rankings (see Heng, 2020a). Although research activities are taking place in some major universities, such as the Royal University of Phnom Penh, the overall national and institutional research culture is underdeveloped (see Oleksiyyenko & Ros, 2019).

Many factors are contributing to the underdevelopment of research in Cambodia. Some of the barriers include low academic salaries, limited research

incentives, inadequate research infrastructure, heavy teaching loads, limited academic freedom, and vague research policies, among other factors (CICP, 2016; Heng, 2020b; Kwok et al., 2010; Oleksiyenko & Ros, 2019; Ros & Oleksiyenko, 2018).

Several research studies have shown that Cambodia lags behind many of its ASEAN counterparts in terms of research productivity. For example, Nguyen and Pham's (2011) study found that Cambodia was among a group of three other ASEAN countries (Laos, Myanmar, and Brunei) that had the lowest research output in the region. Barrot's (2017) study showed a similar result, that is, Cambodia outperformed only Laos and Myanmar when it came to research performance in the language and linguistics. Other studies by Eam (2015) and Kitamura et al. (2016) also indicated that research involvement of Cambodian academics was very limited. Eam's (2015) survey of 444 Cambodian lecturers, for instance, revealed that 65% of them did not engage in any research at all.

Heng's (2020a) recent analysis of research publications indexed in the Scopus database, the world's largest abstract and citation database of peer-reviewed literature, showed that Cambodia was ranked 8th among the 10 ASEAN members. Specifically, Cambodia published about 3,700 Scopus-indexed documents over the last decade (2010-2019). Thailand and Vietnam had 152,208 and 55,639 publications, respectively (Heng, 2020a).

Overall, as Heng (2020b) noted, "it is common knowledge that the landscape of academic research in Cambodia is far from well-defined" (p. 2). Ros and Oleksiyenko (2018) attributed the limited academic competence of Cambodian lecturers to policy misalignment across different structural layers from superstructure (national) to understructure (individual) levels. They argued:

Although the Cambodian Ministry of Education, Youth, and Sport produced policy papers and implemented donor-driven projects such as HEQCIP [Higher Education Quality and Capacity Improvement Project], the government failed to promulgate clear regulations and provide guidance on what is required to promote and retain competent academics in Cambodian universities. (p. 31)

Stakeholder collaboration is the key to promoting research

The above quote highlights the significant role of clear research policies needed to guide the development of research in Cambodia. However, to develop a strong research culture, active involvement from all concerned stakeholders is needed. As Heng (2020b) argued, “it takes all concerned stakeholders across different levels—national, institutional and individual—to work together to nurture and promote a vibrant research culture in Cambodia.” He added:

The Cambodian government, through MoEYS and other state institutions, needs to lead the change that seeks to enhance a research culture in Cambodia. Educational institutions and relevant actors at the meso level must adapt to changes, both from above and below, and embrace them. Individual academics and researchers need to rise up to the challenges, exercise their agency and commit themselves to promoting research by actively conducting, sharing and publishing it. (p. 4)

Thus, while the role of the government is vital, the role of other actors is crucial as well. Heng and Rautakivi (2020) recently argued that all concerned stakeholders must address key challenges that prevent the development of a strong research culture in Cambodia. They mentioned four key challenges: (1) a lack of a vibrant research culture, (2) a lack of capable and willing research advisors, (3) inadequacy of local research journals, and (4) a lack of financial support and positive reinforcement (p. 1). They suggested expanding “the availability of local academic journals and other types of publication outlets” by establishing more national journals and institution-based journals (p. 3).

Recognizing the significance of local journals and academic publication outlets in nurturing a healthy research culture in Cambodia, we are working together as a team to manage Cambodian Education Forum (a newly established online publication forum dedicated to education-related topics) to provide a venue for Cambodian researchers, educators, teachers, students, and administrators, especially novice and emerging writers or researchers, to share their

perspectives, understanding, and research findings on topics relevant to education in Cambodia and beyond.

In this edited volume, we put together short articles previously published by Cambodian Education Forum. The aim is to contribute to building a strong research and publication culture in Cambodia and to provide opportunities for Cambodian novice and emerging writers or researchers to publish their work in an academic form such as books and journals. We strongly believe that to promote research and publication, we need to start somewhere to build momentum for research and publication (see Heng, 2020b). When more and more people conduct research and publish their work, other people will develop their interest in research and publication. This, in turn, will foster a striving research culture in Cambodia.

Organization of this edited volume

We have organized this book into four parts, starting and ending with our introductory and concluding chapters, respectively. There are 21 short articles contributed by 14 different authors. Some articles (called chapters in this volume) are written as opinion articles, while others are research articles. Overall, the articles address different aspects of English Language Teaching (ELT) and education, particularly online education in Cambodia during the COVID-19 pandemic.

Part I: English Language Teaching and language policy

In Chapters 2 and 3, Kimkong Heng examines effective English vocabulary learning and English vocabulary teaching strategies, respectively. Both chapters draw from Heng's (2011) master's thesis as well as relevant online and academic sources. Useful in these chapters are two separate tables (Table 2.1 and 3.1) that summarize all the English vocabulary learning and teaching strategies. In Chapter 4, Davut Nhem discusses the role of culture in ELT. This chapter specifically looks at the *what*, *why*, and *how* of culture in ELT.

Chapter 5 by Chan Hum highlights key findings from a recently published research article (Hum & Choi, 2020) that examines the formation of a language-in-education policy in Cambodian universities. The chapter emphasizes the

challenge regarding a lack of clear guidelines for foreign language education in Cambodian higher education. In the final chapter in this part, Kimkong Heng discusses the effect of the global dominance of English, fostering a new trend among Cambodian parents who tend to send their children to English nursery or kindergarten schools before the children are eligible for formal education in primary schools that lessons in Khmer. This practice creates some problems, including a potential identity crisis among some children.

Part II: Online learning in Cambodia during COVID-19

There are nine chapters in this part. In Chapter 7, Kimkong Heng examines the opportunity provided by the COVID-19 pandemic for the education sector in Cambodia. The chapter also briefly discusses Cambodia's research performance and the initiatives undertaken by the Cambodian Ministry of Education, Youth and Sport. In Chapter 8, Sopheap Kaing argues that COVID-19 has forced Cambodian HEIs to adopt hybrid teaching and learning. Interesting in the chapter is the different types of hybrid teaching and learning environment. Chapter 9 by Sokna Sun shifts the focus to the challenges and opportunities associated with online learning during the COVID-19 pandemic. This chapter concludes with a call for the Cambodian government to invest in improving technological infrastructure to facilitate online education.

In Chapter 10, Seangmeng Sarik drawing on different studies examines the role of information and communication technology (ICT) in sustaining online education amid the COVID-19 pandemic. In Chapter 11, Piseth Neak explores the concept of self-direct learning. The author argues that self-directed learning is the way forward for education in the post-COVID-19 world. Chapter 12 by Kakada Uon discusses the challenges facing Cambodian students who study online during the pandemic. The chapter seems to suggest that online learning may not replace face-to-face learning.

In Chapter 13, Sokna Sun takes the discussion into the realm of rural primary education in Cambodia during COVID-19. This chapter examines key challenges confronting primary education stakeholders in rural Cambodia and offers some personalized and potentially practical solutions to address the challenges. In Chapter 14, Sopheap Kaing looks at the implementation of hybrid teaching and learning in Cambodian higher education. The chapter offers some

suggestions on how to implement this mode of teaching and learning successfully. Chapter 15 concludes this part. In this chapter, Sokna Sun discusses the challenges that online learning during COVID-19 poses for students and offers some suggestions to improve online learning systems.

Part III: School leadership and education reform

In Chapter 16, Rathana Ly drawing mainly on Hallinger (2009) discusses the significance of instructional leadership and the various roles and responsibilities of school principals. In Chapter 17, Khorry No turns to a recent education reform initiative in Cambodia, that is, the introduction of the New Generation School (NGS) program. The chapter looks at different conditions required to ensure the success of the NGS. Chapter 18 on Language Management System (LMS) concludes this part. In this chapter, Sary Mam explains what LMS is and what its key features are.

Part IV: Curriculum, assessment, and research

In Chapter 19, Meassngun Saint reflects upon the definition of curriculum, curriculum types, and curriculum management. The author explains three types of curriculum, including intended, implemented, and attained curriculum. In Chapters 20 and 21, Koemhong Sol drawing on existing research looks at formative assessment and intervention strategies for children with Attention-Deficit/Hyperactivity Disorder (ADHD), respectively. Chapter 20 examines the definition, purposes, and benefits of formative assessment as well as the role of feedback in formative assessment. In Chapter 21, the author offers suggestions on how to support children with ADHD.

In Chapter 22, Kimkong Heng summarizes key findings of a recently published article (Heng et al., 2020) that extensively reviews 65 empirical studies on factors influencing academics' research engagement and productivity. Most interesting in this chapter is Figure 22.1 that shows all the factors found to have an influence on research engagement and productivity of academics across the world, particularly those who are based in developing countries. The last chapter in this part concludes this edited volume. In this final chapter, we discuss key challenges we have encountered working with novice Cambodian authors and researchers to support their research and publication endeavors.

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PART I: ENGLISH LANGUAGE TEACHING AND LANGUAGE POLICY

2. Effective English vocabulary learning strategies: A research summary

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As long as English is still the language of science, technology, international business, research, and academic publication (see Bennett, 2014; Kaplan, 2001), strategies on how to teach and learn the English language effectively continue to be a subject of great interest among English teachers and learners, and perhaps effective English learning and teaching strategies will remain a popular topic of discussion and research for years to come.

Given the significance of having extensive vocabulary knowledge, that is, knowing a lot of English words, particularly high-frequency ones, many, if not all, English as a second or foreign language learners from all over the world may have a strong interest in knowing and understanding how English vocabulary can be learned in an effective way.

To provide English learners, especially Cambodian English learners, with some ideas on how to learn English vocabulary effectively, this short article presents learning strategies believed to be effective for learning English vocabulary. The ideas presented in this essay are based on research findings drawn from the author's unpublished master's thesis conducted about 10 years ago (Heng, 2011). Although the research on which this article is based is relatively old, its findings are still highly relevant and applicable to the current context of English language learning in Cambodia and beyond.

To offer context, the thesis was conducted by the author to fulfill the requirements of his master's degree in Teaching English to Speakers of Other Languages (TESOL) at a Cambodian public university. The study adopted a qualitative research method involving in-depth semi-structured interviews

with 10 Cambodian English students and teachers (five in each category) purposefully selected from a private English school in Phnom Penh.

The findings obtained from the analysis of the interview transcripts reveal a number of strategies used by the research participants and perceived by them as effective English vocabulary learning strategies. These strategies, some of which were mentioned by both groups of participants, are summarized in Table 2.1 below.

Table 2.1. *Effective English vocabulary learning strategies* (Heng, 2011)

No.	Strategies	Explanation	Illustrative quotes
<i>Key findings from the interviews with five Cambodian English teachers</i>			
1	Extensive reading	Read anything in English as much as possible.	In order to improve their vocabulary, students have to read a lot to meet a lot of words [again and again].
2	Use new words in speaking and writing	Use new words that we have learned in speaking and writing as much as possible.	Students should try to make examples by using the vocabulary that they have learned. They can practice using new words with their friends, teachers, or anyone they know.
3	Memory strategies (e.g., memorization and repetition)	Try to remember the spelling and meaning of new words as much as possible.	Students should try to remember the spelling of the [new] words and also the meaning of the words because if they don't remember the meaning of the words, they cannot use them.
4	Note taking	Jot down new words in a vocabulary notebook whenever we see them.	When we meet new words, we note them down in our notebook.

			After we note those new words, we check their meaning. After we check the meaning, we start to learn and figure out how to remember those words.
5	Using dictionaries	Frequently check the meaning and grammatical features of new words in a dictionary or dictionaries.	Students should consult a dictionary, preferably a monolingual [English-English] dictionary as much as possible.
6	Making your own dictionary	Make word lists alphabetically or by themes.	Student can make their own dictionary. They can put all those new words together and arrange them in an alphabetical order.
7	Being active and independent learners	Be active learners inside and outside the classroom.	The most important point is that students should try to involve in classroom activities when they learn [new] vocabulary.
<i>Key findings from the interviews with five Cambodian English students</i>			
8	Practice makes perfect.	Seek an opportunity to practice using new words in writing and speaking as much as possible.	I [try to] use the new words that I have learned by creating the sentences using [those] new words. Try to use the new words by speaking it out loud.
9	Reading	Read books, newspapers, magazines, or anything in English as much as possible.	To remember the words, I often read books. For me, I like reading because when I read, I meet the words again

			and again which makes me remember the words. I also read newspapers, magazines, and especially story books which have lots of new words.
10	Dictionary use	Consult a “good” dictionary to learn necessary information about a word such as its parts of speech, spellings, pronunciations, definitions, collocations, usage notes, and other grammatical features.	I always highlight difficult words when I meet them. I take note those words and check the dictionary for their meaning, parts of speech, pronunciation, and how they are used.
11	Keeping vocabulary notebooks	Write the new words down in a notebook so that it is easier to review them later.	I always write down new words in my notebook. When I forget the words, I can check it in the book and review it again so that I can remember.
12	Seeking help	Ask for help from friends and teachers whenever we do not understand the meaning of new words or do not know how to use them.	Whenever I don’t understand the meaning of new words after checking a dictionary, I ask for help from my teachers
13	Speaking out loud	Put the new word in a sentence and say that sentence out loud.	NA
14	Extensive listening	Listen to something in English as much as possible.	We can listen to radios and TV programs that have subtitles so that we can see new words again

			and again, which makes us remember
15	Guessing word meaning from context	Try to guess the meaning of an unfamiliar word by using contextual clues such as the meaning of other words surrounding the unknown word and/or the situation in which the unknown word is used.	NA
16	Using flash cards	Write a new word down on a card/paper and write the word meaning on another side of the card. Look at the word and try to guess and remember the meaning of that word. Practice often.	[One of] my own techniques or strategies that I use to study vocabulary is using a flash card. I mean we can look at the word on one side [of the card] and the word meaning on another side.
17	Studying word lists	Keep a word list of new words and review or study the list often.	NA
18	Memorization	As above, try to remember the spelling and meaning of new words as much as possible. This technique works best for students who are shy or lack confidence in using new words in speaking and writing.	I try to memorize the words by repeating them many times

Note. Original quotes in the thesis were slightly altered to improve fluency and brevity.

As can be seen in Table 2.1, there are many strategies the participants perceived to be effective for learning new English vocabulary. Although generalization was not the aim of the study, it is worth mentioning that a few strategies were commonly used by both the teachers and the students. They include extensive reading, dictionary use, practicing new words in speaking and writing, memorization, and keeping word lists or vocabulary notebooks.

Obviously, the strategies included in the above table is not exhaustive as there are numerous other strategies the participants did not mention during the interviews. Readers are therefore encouraged to explore this topic further by reading different sources ranging from blogs and websites to books and to academic journal articles.

In the context of advanced technology and the rise of social media (Allen, 2019), it is advisable that English language learners make use of the technology and technological devices at their disposal such as tablets and smart phones to learn new words and improve their English. They can practice using new words they have learned in writing by, for example, posting them on Facebook or Twitter and practicing new words in the comment section. They can also subscribe to YouTube channels that aim to teach new words or the English language generally. They may download some applications for learning English vocabulary (see Quora, n.d.), such as Quiz your English and Duolingo, and explore them to see whether they are useful or meet their interests.

In short, English learners are different, so are their learning styles and strategies (Richards & Renandya, 2002). Some may find one or a few strategies useful or effective, while others may find the same strategies to be less useful or effective for them. Thus, it is vital they explore each strategy by using it and changing it to a new strategy if they find a particular strategy not effective.

It is true that knowing effective vocabulary learning strategies is important, yet applying the strategies, exploring new strategies, making the commitment to learn new words, using them in speaking and especially in writing, and having a strong desire to increase one's vocabulary size are even more crucial.

Finally, I wish to conclude this article with a quote: A new word a day keeps the dictionary away.

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3. Some suggestions on how to teach English vocabulary effectively

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This short article attempts to provide some suggestions on how to teach English vocabulary effectively. The ideas presented in this article are based on the author's experience in teaching general and academic English in the context of Cambodian schools and universities, the author's master's thesis, and relevant online and academic sources.

Based on the author's unpublished master's thesis (Heng, 2011), there are a number of vocabulary teaching strategies that the research participants (who were English teachers) used to teach vocabulary to their students. All of the teaching strategies that were mentioned by five Cambodian English teachers during in-depth semi-structured interviews are shown in Table 3.1 below.

Table 3.1. *English vocabulary teaching strategies* (Adapted from Heng [2011, pp. 18-20])

No.	Strategies	Explanation
1	Word matching	Match a word with its definition or synonym.
2	Word hunting (or word supply)	Find a word that corresponds to the given definition or synonym.
3	Word jumble (or word unscramble)	Students are given a bunch of mixed-up letters or an unrecognized word. They need to unscramble or rearrange the letters to make a correct word.
4	Sentence completion	Students are given a sentence that contains one or two blanks. They have to complete the sentence using a list of words given. Usually 10 to 15 words are given for 10 sentences.

5	Paragraph completion	This is a test item commonly used for advanced learners who are presented with a paragraph with missing words. They have to complete the paragraph using the words given in a box or list.
6	Gap filling	This is a general term for the strategy of sentence or paragraph completion. Students are required to complete the gap using the words given. In some cases, the words are not given, so students have to complete the gap using any word they think fit with the gap and meaning of the sentence.
7	Using real objects or pictures	This is a very useful strategy for beginning students, especially young learners. It is good for teaching concrete nouns such as fruit, vegetables, animals, etc.
8	Giving definitions	Teachers can explain to the students the meaning of a (new) word by giving them definition(s) of the word.
9	Giving examples	Teachers can explain to the students the meaning of a (new) word by giving example sentences. This strategy may be time-consuming, but it is very useful because it provides a context in which the word is used.
10	Slap the board	This is a fun vocabulary game. Teachers write about 10 words on the board and ask several pairs of students to compete. Each pair takes turns competing. They stand in front of the board and try to slap or hit the word called out by the teacher or a student representative. The pair can stand facing the board or with their back to the board.
11	Rub out and remember	This is another fun vocabulary game. Teachers may write 10 words and their corresponding definitions or synonyms on the board. They then ask students to read and remember those words and definitions/synonyms. They rub out (i.e. delete) one word and/or definition/synonym at

		a time and ask a student, a group of students, or the whole class to read all the words including the one that has just been rubbed out. They repeat the activity until all the words and definitions/synonym disappear from the board. Students are finally asked to read all the words and/or definitions/synonyms that have been completely rubbed out, meaning that they look at the blank board and recall all the words and/or definitions/synonyms.
12	Perform or mime	One student is asked to come to the whiteboard and do gesture to describe a word. Other students guess the word based on the gesture or mime performed by their classmate. The class can be divided into two large groups or four to five groups. They take turns performing mime and compete with each other.
13	Talk or write freely using the new words	Students are asked to talk or write freely using the words they have just learned. This can be done as a review or a classroom game.
14	Using dictionary in the classroom	Teachers encourage their students to bring a dictionary to class (preferably English-English dictionary) by giving them extra scores, promising them good class participation grade, etc. This promotes dictionary use, even in the classroom.
15	Direct translation	Teachers can ask students to translate the word into their native language or they can provide the translation themselves when none of the students can give a correct translation.
16	Spaced repetition (review)	This is an effective strategy to review lessons and especially new vocabulary. Students can be given opportunities to review new words they have learned on a regular basis. For example, newly learned words may be reviewed one day

		after they are introduced. After that they can be reviewed a week, two weeks, or a month later.
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As Table 3.1 shows, there are many strategies Cambodian English teachers who participated in the study used to teach vocabulary to their students. When asked about the strategies that they believed to be effective, they mentioned several strategies, including word matching, word supply (i.e., word hunting), word jumble/unscrambled, giving examples, and using pictures.

No doubt, the strategies included in the above table are by no means exhaustive as there are many other strategies the teacher participants did not mention during the interviews. Readers are, therefore, encouraged to explore other strategies by consulting different sources, including books, academic journal articles, and online resources. For example, they may consult *Teaching Vocabulary: Strategies and Techniques* (Nation, 2008) and *Teaching Vocabulary* (Lessard-Clouston, 2013).

In the context of Industry 4.0 and the rise of social media (Allen, 2019), it is imperative that English teachers, including Cambodian English teachers, adopt and embrace information and communication technology (ICT) to innovatively teach vocabulary to their students. They can engage their students using social media, especially Facebook. They can also teach through videos by posting video lessons in Facebook groups, Telegram groups, YouTube channels, or other platforms.

Moreover, language teachers can encourage their students to download some free applications that allow them to learn and practice English vocabulary (see Quora, n.d.). Alternatively, they can guide their students to visit and explore different websites that provide free learning resources as well as free English vocabulary quizzes. Websites such as www.englishvocabularyexercises.com, www.englishclub.com, www.usingenglish.com, and www.english.best have been around for years. Thus, teachers should, from time to time, encourage their students to visit those websites and take advantage of those free online resources.

English language teachers may also direct students' attention to explore and learn vocabulary from the General Service List created by Michael West (West, 1953), a New General Service List developed by Browne and co-researchers (Browne et al., 2013), or Longman Communication 3000 prepared by the Longman Dictionary of Contemporary English. All of these word lists are ideal for beginner students as the lists contain the most frequent words in both spoken and written English. For more advanced students, teachers can refer them to Coxhead's (2000) Academic Word List and Gardner and Davies' (2013) New Academic Vocabulary List. There are also websites that offer vocabulary exercises on these academic words (see www.englishvocabularyexercises.com).

Finally, teachers may consider some of the pedagogical strategies for teaching vocabulary suggested by Teng (2014, pp. 44-51) as follows:

1. *Choose high-frequency words to teach:* More frequent words are more useful than less frequent words.
2. *Supplement explicit vocabulary learning to incidental learning:* Incidental vocabulary learning is not enough, and teachers should supplement deliberate vocabulary teaching into classes to facilitate learners to develop the depth and the breadth of vocabulary knowledge.
3. *Know how useful each strategy is:* Teachers need to model and practice vocabulary teaching in classes so that students are aware of the strategies they can use to learn vocabulary.
4. *Focus more on productive vocabulary:* The more students engage with the productive use of a word (say or write it, and create grammatical and collocational comparisons), the more likely that they are to master it.
5. *Foster learners' morphological awareness:* A word family consists of three morphological structures: the root (*promote*), the inflections (*promotes*, *promoted*, *promoting*), and the derivatives (*promotion*, *promotive*, *promoter*). Students can be trained to use contextual clues to guess the meaning of new or unknown words that they come across. Teachers can ask them to break down the words into prefixes, roots, and suffixes; then they can brainstorm the potential meanings of the unknown words.
6. *Train students' lexical inferencing ability:* Lexical inference is described as a top-down cognitive process of resorting to different resources to identify the meaning of a word. As guessing from context is one of the most frequent and favored strategies for learners when meeting new words in reading, teachers should spend some class time to develop students'

lexical inferencing ability (i.e., ability to guess the meaning of words from context).

7. *Choose appropriate textbooks*: It is necessary for teachers to support students by choosing appropriate textbooks, contriving new reading materials, or looking for supplementary sources of suitable reading input.
8. *Vocabulary learning is incremental*: Learning the form, meaning, and use of vocabulary occur over time. Teachers should help students understand that learning vocabulary is a long-term process. Thus, rather than trying to memorize all the words at a time, it is better for students to spend some time reviewing their lists of unknown words each day or week. Teachers should support this learning process.

In short, the main aim of language teachers is to help students to increase their vocabulary size and to develop their general English proficiency. To this end, teachers should spend the bulk of their classroom time “to raise students’ awareness of strategies in learning vocabulary, the kind of strategies in which they can actually know how to learn vocabulary independently, meaningfully, and efficiently” (Teng, 2014, p. 52).

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4. Culture: The hidden truth in English Language Teaching

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Drawn on the author's experience in conducting research on the interplay between language and culture in the field of English Language Teaching (ELT), this article aims to provide readers, particularly English as a Foreign Language (EFL) teachers, with knowledge about an important but rather neglected phenomenon regarding the role of culture in ELT. During this era of globalization in which information is pervasive and learners of English need to communicate with people from diverse cultural contexts, culture plays a pivotal role both in and outside the classroom. This article, drawing upon the literature, focuses on two aspects: the role of culture in ELT and strategies EFL teachers might adapt to teach culture in their English classrooms. This article focuses on the *what*, *why*, and *how* of culture in ELT.

What

In retrospect, the typical aspiration in English language teaching had centered on the development of English language proficiency until the 1970s when Hymes (1972), looking from a sociolinguistic perspective, proposed the notion of "communicative competence." This notion has led to the development of a well-known language teaching approach, called "Communicative Language Teaching." In this approach, the triumph of English language learning is not only about the construct of correct sentence structures (i.e., grammar) but also about the achievement of communication skills through various means. For instance, a teacher might introduce new language items through reading, listening or conversations, followed by discussion, lessons or controlled practices about grammatical structures. The class may then end with free or less controlled practice activities to allow students more opportunities to engage with the target language or lesson (see Nhem, 2019).

Between the 1970s and 1990s, researchers developed other concepts such as “cultural competence or intercultural competence,” and by the end of the 20th century, Byram (1997) introduced the term “intercultural communicative competence” to extend the communicative competence proposed by Hymes in the 1970s. Obviously, the notion of “cultural competence, intercultural competence, or intercultural communicative competence” has focused on the vitality of culture in ELT and aims to develop students’ ability to understand not only their own culture but also the culture of other people. The evolution of language learning outcomes during that period has been a wake-up call on the essentiality and the appreciation of multiculturalism in ELT. This means that ELT has become a window opening up students’ worldviews on the diversity of culture. However, in the early 2000s, Moran (2001) argued that “personal competence” is at the core of ELT. This personal competence refers to students’ ability to use the English language not only to appropriately interact with other people or understand cultural differences but also to understand their own culture, identity, or worldview.

Unfortunately, researchers have focused mostly on the aspect of “intercultural competence or intercultural communicative competence,” while personal competence has been relatively left underexplored. A plethora of research (see Sercu et al., 2004) has revealed that the role of culture has, to some extent, gone unnoticed by EFL teachers in diverse contexts as they tend to focus more on teaching other language aspects such as grammar or vocabulary. Concurrently, a lot of studies have also pinpointed teachers’ limited understanding of cultural aspects that appear in ELT textbooks and their limited ability to incorporate cultural activities in their classrooms (see Lim & Keuk, 2018; Luk, 2012; Nhem, 2020). This issue has probably resulted from teachers’ limited engagement with research (e.g., reading recent articles or books) while teacher training seems to have exceedingly focused on teaching language skills, leaving no direction or discussion on how to teach culture and what role it plays in the classroom.

Why

Why does culture matter in ELT and beyond? First, a large amount of cultural knowledge or information is transmitted through textbooks, some of which might present cultural information with an appreciation of certain cultures,

ideological assumptions or political influences. In fact, a number of studies (see Hilliard, 2014; Song, 2013; Xiang & Yenika-Agbaw, 2019) have indicated concerns about the presentation of culture in both internationally and locally published ELT textbooks. Many of these textbooks may have been developed in a rather biased manner, embedding ideological orientation toward certain cultural values, power, or political influences. If teachers are not aware of how to deal with such issues, their students might absorb cultural information unconsciously. This might lead students to develop prejudice and become less critical. Textbook users (i.e., teachers and students) need to know that cultural information presented in EFL textbooks should be regarded as something that needs to be critically examined, debated, compared, and reflected on rather than to be learned uncritically. In fact, engaging students in comparing and reflecting on cultural diversity can develop their critical thinking which is one of the 21st century skills.

How

The previous sections have provided an overview of the role of culture in ELT. Yet, how can EFL teachers and students address these concerns? Moran (2001) suggests four stages of cultural activities that teachers can adapt and incorporate into their classroom.

1. **Gathering information:** Students are given activities that allow them to obtain different types of information. For example, students read a text about “Greetings” and answer some questions related to the topic. At this stage, students will learn different types of greetings in different cultural contexts. The questions about this topic can be: How do American people greet each other? Is there a difference in their greetings between young and old people? How do Korean people greet each other? Simply put, all the activities are about gathering information.
2. **Developing skills:** Students are provided with activities that allow them to perform and experience the cultural information that they have learned. For instance, students can do a role-play about American or Korean greeting style. Some questions related to this topic can be: How can you describe American greetings? How do you do them? What is appropriate during greetings?

3. Discovering explanations: Students are provided with activities that allow them to interpret or explain the cultural information that they have learned. For instance, students can explain why American people shake hands. What is the value behind that? Is it possible to shake hands in other countries? What can be considered as polite in American greetings?
4. Reflection: At this stage, students are required to compare the cultural information they have learned with their own culture. They should reflect on their feelings, thoughts, or attitudes. For example, how do you feel about American greetings? How would you greet American people and Cambodian people?

These four stages of cultural learning activities aim to develop different learning outcomes of “cultural knowings” (Moran, 2001, p. 139). In the gathering information stage, students are expected to develop “knowing about: description” while in the developing skill stage, students should develop “knowing how: participation.” Next, the discovering explanation stage aims to develop “knowing why: interpretation” whereas the reflection stage is to develop “knowing oneself: self-awareness.” It should be noted that some ELT textbooks might fail to cover the reflection activities, so teachers need to be aware of this issue.

Finally, this overview regarding the role of culture in ELT is written to provide readers with some essential information to stimulate their interest and awareness of the topic. I argue that the role of culture should not be excluded in any form of teaching, both in the classroom and in teacher training programs. To enhance their knowledge and skills about teaching culture and English in general, EFL teachers should read not only teaching methodology books or materials but also the latest research articles that address the current concerns or developments in ELT.

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5. Cambodia's Language-in-Education Policy: Too many recipes, but not enough ingredients

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This essay highlights key findings from a full research paper, entitled "Language-in-education policy formation through a consultation-based system: The case of multilingual curricula in Cambodian universities," published in *The Journal of Asia TEFL*, Vol.17, No. 2, summer 2020, 463-478.

As the paper concludes, LEP in the form of foreign language education (FLE) in Cambodian universities seems to have been enshrined by different recipes, metaphorically referring to policy texts, craving for national and ASEAN regional politics and economic development. Without any prescription of curriculum content or guiding principles, however, the Cambodia's LEP is entirely subject to the demands of stakeholders, as well as the constraints and enablement of the contexts. The incorporation of 'flexibility' and consensus with various stakeholders has been considered an ideal LEP formation process.

Moreover, the resultant LEP for Cambodia's university education was less than ideal regarding quality issues; even some basic requirements (e.g., quality assurance standards) were not met. The result, paradoxically, has driven the curriculum away from meeting stakeholders' needs. The findings in this study are consistent with those of the previous studies, as many have argued that Cambodia's LEP has been hegemonic, flared by ideologies and politics.

For example, in the 7th century, under the Indian political pressures and cultural influences (Thong, 1985), the Cambodia's LEP introduced Pali and Sanskrit into FLE curriculum, while about two centuries after the loss of the Angkor Empire and Longvek capital, Thais took control of the north-western parts of Cambodia, and thus the Thai language influenced the language of

education, literature, and administration in Cambodia. When Cambodia was later subject to French colonization (1863-1954) and then under the regime of Prince Norodom Shihanouk in the 1960s, the French language was given an official status along with the native Khmer language because France attempted to use its language as a means of establishing education systems and strengthening colonial power.

After the 1970s, Vietnam advanced its interventions and reinforced the use of its language in both formal and non-formal education (e.g., military training) in order to transform Cambodia's political ideology and economic system. At the same time, the Russian language was politically introduced to Cambodia in order that Cambodia could gain financial assistance and diplomatic support from the Soviet Union/Russia. Thus, the Vietnamese and Russian languages were predominantly used as the economic and political languages, functioning as tools for international influence and appropriation in Cambodia. Under such an ideological pendulum, Cambodia's LEP was impacted by 'linguistic/language imperialism' (Clayton, 2000). As a result, other foreign languages such as English and French were not allowed to be taught in Khmer schools.

After a national election in 1993, and with the move to the free market and membership of the Association of Southeast Asian Nations, a period defined as neoliberalism, Cambodia's LEP faced yet another batch of ideologies in language studies, i.e., English, the official language of ASEAN, and Chinese, Korean, and Japanese, the languages of the Asia-Pacific's three largest powers. This ideological process enables the policymakers of the Royal Government of Cambodia (RGC), the employment market and development partners, as well as Cambodian learners, to recognize the proficiency in these newcomer languages as essential for Cambodia's economic development and individual social mobility (Clayton, 2006).

At the institutional level, however, there is no separate department that solely governs LEP. Cambodia's LEP for university education is thus governed by a body of policies covering all aspects of education. Three levels of actors are involved in the policy processes: macro, meso and micro levels. As prescribed in the 2007 Education Law (Kingdom of Cambodia, 2007), the LEP process is rather top-down. At the macro or governmental level is the Supreme National

Council of Education, chaired by the Prime Minister of the Kingdom of Cambodia. It formulates 'long-term policy and strategy,' assesses the overall education progress, and allocates resources for implementing policies.

At the meso level – where actors coordinate policy implementation between the national level (macro level) and micro level – is the Technical Working Group of Higher Education (MoEYS, 2014), which promotes aid effectiveness and development partnerships in support of the achievement of higher education policies, as well as ministries, agencies, and committees. Some of the higher education policies include, among others, the Cambodia Qualifications Framework and the Minimum Quality Standards of the Accreditation Committee of Cambodia.

At the micro level, the universities interpret and implement the policies as stipulated and translated at the macro and meso levels. The LEP, as practiced at this level, is influenced by local stakeholders such as parents and students, as well as local developmental partners that seek to improve the education quality and provide financial support to local universities.

The current LEP recognizes the revitalizing role of the English language in both the ASEAN region and the wider global community. Thus, the Curriculum Framework for General and Technical Education 2015 mandates two compulsory foreign languages, French and English (MoEYS, 2015), in the national curriculum. For basic schooling, foreign language education (FLE) follows the guidelines in the Policy for Curriculum Development for General Education (2005-2009) and the Curriculum Framework for General and Technical Education 2015.

There is no guideline for FLE in Cambodia's higher education. While several policies and plans, e.g., Policy on Higher Education 2030, Education Strategic Plan 2014-2018, and the Minimum Standards for Accreditation of Higher Education 2010, have mandated teaching English and French as foreign languages in Cambodia's higher education institutions (HEIs), they do not provide any clear guidelines on the what and how to teach these languages. They do provide the standard of achievement, though. The ultimate proficiency aimed for foreign languages through the three levels of education is somewhat ambitious, given that it encompasses not just daily communication but also

other advanced areas such as research and work, and it even seeks to develop critical thinking and creativity (MoEYS, 2015).

Considering the proficiency and other goals, the study hours for the English subject in a three-year program for technical education are rather limited as there are only 76 hours annually, and 228 hours in total of teaching hours (MoEYS, 2015). For the undergraduate programs, time allocation is more realistic, with 450 hours annually and 1,800 hours for the four years. This practice is seen as a lack of consensus at the institutional level.

Without clear guidelines on what and how to teach, LEP has been under ideological hegemony. The LEP practice has varied across higher education institutions (HEIs) and different units within a single institute. For example, some universities require students to sit for state exams in order to graduate, while others stipulate that students do a practicum or write a thesis. The community of practice of FLE has been left to the perceived features of the contexts and people's needs. Within the university education context, English and French have been used as the medium of instruction (MOI) in some departments and/or institutes, e.g., the Institute of Foreign Languages, the Department of International Studies, and the Department of Media Communication. Others offer lessons on them through a flexible time frame, e.g., three months, six months and/or one year, and still others, through a fixed-length program. There is also 'policy misalignment' among different elements of the curriculum, e.g., assessment, teaching methodology, and the nature of programs (Ros & Oleksyenko, 2018). Thus, Clayton (2006) was right when he fittingly describes LEP in Cambodian HEIs as highly 'flexible'.

In building absolute 'flexibility' in developing LEP in the form of FLE for Cambodia's universities, some questions should be considered. For example, what degree of flexibility is optimal in the current context? If a benchmarking framework is to be established, what aspects should be included to provide direction to relevant parties to help balance the power difference in ways that are not so rigid that it does not allow for room to respond to changing stakeholder needs? How exactly is power negotiation in an LEP process, for instance, not just verbally but through non-verbal and other symbolic exchanges including turn-taking and body language?

Seeking answers to these questions may help pre-empt undue domination of the negotiation process by 'the powerful,' especially in high power distance societies like Cambodia. In view of the findings, a consultative policy process of LEP should not be given too free a rein but, rather, be guided and principled so that the LEP process and outcomes can be kept on an appropriate track. It is hoped that further research is conducted to identify a balancing point in LPP formation, which enables constructive opinion gathering and freedom to incorporate the demands and needs of all parties.

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6. Embracing English while preserving Khmer identity

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It is undeniably true that English is a powerful language. It is powerful in the sense that it empowers people to communicate across languages and borders. As a global lingua franca, English has facilitated and accelerated globalization, international business, and the internationalization of education.

While English has enabled communication across languages, cultures, and countries, it has had negative effects. Not only has it led to the loss of local knowledge as research and scholarship in languages other than English declines, but it has also contributed to the devaluing of local, native languages, potentially accelerating the extinction of minority languages across the world (see Ferguson, 2007; Gibbs, 1995; Kaplan, 2001).

In Cambodia, the effect of English is felt throughout the country. English is both a bridge and a barrier. It is a bridge and a key enabling factor for educational and professional opportunities. English is a passport for local and overseas scholarships, better career prospects, and enhanced networks. Knowing English is like having a special key that unlocks closed doors. Being proficient in English is, without doubt, a privilege (see Clayton, 2008).

English, however, can act as a barrier as well. Imagine how the Cambodian people who do not speak English are constrained by their lack of ability to use this foreign language. They may have other necessary skills and are qualified for what they do, but these people are at the disadvantaged end when it comes to personal and professional opportunities, especially those requiring interactions with people from different linguistic and cultural backgrounds. Their potential and opportunities are limited by their inability to function in an environment that requires communication in English.

The value and usefulness of English have further enhanced its dominance and significance. It has become inconceivable for Cambodian parents not to send their children to English schools or attend English classes. It is common knowledge that the earlier children are exposed to English, the better the learning outcome is. This understanding is not illogical because, at a young age, children will be able to pick up the accent and learn the correct pronunciation of English if they study with native English speakers or teachers who have good English accents.

This widely held belief has led many parents to enroll their child or children in nursery or kindergarten schools that offer English-based learning programs long before the children are eligible for formal education in either public or private primary schools. The result is that many children can speak, read, write, and listen to English with relative ease. However, some of them who attend international schools offering programs in English are not able or not willing to speak or communicate with their parents or relatives in Khmer, their native language. They receive more exposure to English and find it easier to communicate in English than in Khmer.

This leads to several problems, one of which is the loss of meaningful connection or communication between children and their elderly who generally cannot speak English. For young parents, many of them can speak English, there is not a problem for them to communicate with their children. They are, in fact, happy to see their children speak English fluently. However, when it comes to communication with the older generation (children's grandparents and older relatives), an issue of a language barrier emerges. This is, however, not a serious problem, given the significance of English for children's future. Yet, from a cultural perspective, this trend does not seem to bode well for the preservation of Khmer identity and culture.

There are some extreme cases in which children, having attended only international English schools, are only able to speak but not read and write in Khmer. Some of these children may probably be experiencing social anxiety, isolation, and low self-esteem as a result of their inability to read or write in Khmer as they live in Cambodia. Although they may have a high level of self-confidence and self-pride in an English-speaking environment, outside of such

an environment, they may experience an identity crisis (see Sok, 2014) – a difficulty in determining who they are in relation to other children who can read and write in Khmer well.

This is just one example of the bigger problem surrounding the enthusiastic embrace of English and the devaluing of the Khmer language. Indeed, it is not the fault of the parents or anyone else. It is the impact of a global phenomenon and problem caused by the dominance of English as a language of many things, if not everything, including science, technology, mobility, education, trade and so on (see Jenkins et al., 2018; Kaplan, 2001; Pennycook, 2017).

As language and culture are closely intertwined, the more children learn and know English, the more they would understand and appreciate the Western culture. Also, they are more likely to develop into people who can be described as “Westernized” – the kind of people who love the Western lifestyle, eat Western food, watch Hollywood movies, and celebrate Western festivals. Some aspects of Khmer culture and customs would, unfortunately, appear traditional, if not obsolete, to them.

This trend has implications for all stakeholders, including parents, teachers, educational institutions, and the community who have pivotal roles to play in ensuring that Cambodian children and young people have the opportunity to study English while at the same time maintaining their Khmer identity. Children should be provided with ample opportunities to develop their understanding of Khmer culture and that of other countries. They should be nurtured and trained to become global citizens who are open-minded, outward-looking, and culturally aware and competent.

Thus, while it is crucial for children and young Cambodians to develop their English language proficiency and skills, it is also important that they maintain their Khmer identity by having a good understanding of the Khmer language and culture. A loss of identity or a confused identity potentially experienced by the young generation of Cambodians is obviously not going to be beneficial for the country, its culture, and people.

No doubt, in this globalized, English-dominated world, the ability to communicate in English is absolutely essential. However, as the world is

changing at a rapid pace, the preservation of one's roots, identity, culture and language should be given top priorities and close attention by all concerned stakeholders at all levels. It is not about one or the other; It is about both: excelling in English and preserving Khmer identity.

Note: This article is based on a presentation the author delivered at the 2020 Teach For All Global Conference on 21 October 2020.

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PART II: ONLINE LEARNING IN CAMBODIA DURING COVID-19

7. COVID-19: A silver lining in the crisis for Cambodia's education sector

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As the saying goes, every cloud has a silver lining. This means that every bad or unpleasant situation can have a positive side to it.

The COVID-19 pandemic is one of the worst disasters the modern world has ever experienced. It has wreaked havoc on multiple dimensions of human life. Not only has it brought the global economy to a standstill, but it has also triggered unprecedented global travel restrictions affecting the movement of people and goods across the world. As of 5 July, more than 11 million people have been infected by COVID-19 (Worldometers, 2020). Of these, over half a million people have died and some six million have so far recovered.

However, looking at the bright side, COVID-19 can be a silver lining in the crisis. In the case of Cambodia's education sector, despite the many challenges posed by the pandemic (see Sok, 2020), the virus may figuratively be described as a silver lining.

In Southeast Asia, Cambodia ranks towards the bottom of the list when it comes to the quality of education, innovation capacity, competitiveness performance, global talent competitiveness and scientific publications score (see The ASEAN Post, 2020; WEF, 2019). As an example, Cambodia is ranked 117th out of 132 countries in the Global Talent Competitiveness Index (Lanvin & Monteiro, 2020). The country's information and communication technology (ICT) infrastructure ranking stands at 100th and its technology utilization is 94th out of 132 countries featured in the Global Talent report.

According to a Scopus analysis conducted by the author, Cambodia is ranked 8th among the 10 ASEAN countries in terms of the total number of research

publications published within the last 10 years and indexed in Scopus, one of the world's largest abstract and citation databases.

Specifically, Cambodia published 3,521 Scopus-indexed documents between 2000 and 2019, while Malaysia, ranked 1st, published 277,866 documents, Thailand (4th) 143,507 publications and Vietnam (6th) 53,907 publications.

None of the Cambodian universities were found in the list of Times Higher Education World University Rankings 2020, while Thailand has 16 universities (the most in ASEAN), Malaysia 13 and Vietnam 3 (Times Higher Education, 2020).

Overall, Cambodia lags behind many of its peers in the region when considering its performance in education, research, and innovation.

As COVID-19 has forced the closure of schools and universities across the world, there has been an unprecedented shift from in-person classes to online teaching on a global scale. For Cambodia, a country with 9.7 million internet users (about 58% of its 16.7 million population) (Kemp, 2020), transitioning to online learning and teaching is a real challenge and a difficult adjustment for many students, teachers, administrators, and parents. However, at the same time, such a transition provides a unique opportunity for the digital transformation of the country's education system.

Cambodia's education system, particularly secondary education, has undergone a series of unprecedented reforms in recent years (Black, 2017). Notable positive developments are the introduction of anti-cheating measures to the Grade 12 National Examination, the implementation of New Generation Schools (Donaher & Wu, 2020) and the adoption of various initiatives to improve the quality of teaching and managing in schools.

For higher education, increasing efforts have been made to improve student enrolments, quality of education, and staff capacity (MoEYS, n.d.). Notably, the Cambodian Ministry of Education, Youth and Sport (MoEYS) have endeavored to promote research by developing and implementing a number of research-related policies (see MoEYS, 2011). They include Policy on Research Development in the Education Sector (2010), Sub-Decree on Appointing Professors in the Field of Health (2010), Master Plan for Research Development in the Education Sector (2011), and Policy on Higher Education 2030 (2014).

MoEYS has implemented and concluded an unprecedented US\$23 million initiative funded by the World Bank. The project, called Higher Education Quality and Capacity Improvement Project (HEQCIP), was initiated to improve the quality of teaching, research, and management as well as to support disadvantaged students (World Bank, n.d.-a).

Recently, MoEYS has embarked on another more ambitious initiative, called the Higher Education Improvement Project (World Bank, n.d.-b). This is a 92.5 million project also funded by the World Bank. The project which is supposed to be completed in June 2024 aims to promote the quality of teaching and research in the field of science, technology, engineering, and mathematics (STEM) and agriculture.

Despite these positive developments, there are other issues that demand new initiatives and policy attention, particularly from the Education Ministry itself (see Heng, 2019). One of the issues is the utilization of technology in the classroom. While ICT has been widely and increasingly adopted in schools in urban areas and in the capital Phnom Penh, schools in rural and remote areas suffer from the lack of technological infrastructure, internet connection, and human resources (Richardson et al., 2014).

The COVID-19 pandemic has left no choice for all schools and universities across the country but to move classes online or at least, in the case of MoEYS, to offer lessons on television and online through social media platforms (mainly Facebook), YouTube and websites (see UNICEF Cambodia, 2020).

The delivery and dissemination of lessons on TV and virtual platforms by MoEYS are temporary and likely to cease when schools reopen, potentially in November (Voun, 2020a) or as early as August (Taing, 2020) for some privileged private international schools. However, the transition from in-person classes to online learning and teaching has provided valuable lessons for students, teachers, and school administrators to understand the challenges, opportunities, and feasibility of fully adopting and integrating ICT into school settings.

In a sense, COVID-19 has ushered in the temporary digital transformation of education in Cambodian schools nationwide (Touch, 2020). This phenomenon was seriously lacking prior to the pandemic (Richardson, 2011) despite the

government's efforts to integrate ICT as a teaching, learning, and knowledge-sharing tool through the development of a new policy and strategy on ICT in Cambodia (MoEYS, 2018). Therefore, from a positive point of view, the COVID-19 pandemic may be a silver lining in the crisis for Cambodia's education sector.

The experience of designing and conducting lessons and classes remotely or electronically is invaluable. The insights gained from such ad hoc initiatives and experiences will have a positive impact on the assumptions, beliefs, and attitudes towards e-learning and blended learning both in schools and universities.

The first-hand experience with e-learning and e-teaching during the pandemic should serve as a foundation and inspiration for future adoption of technological tools to enhance learning and teaching in schools and, to a certain extent, in universities where the use of ICT should be further encouraged and embraced (see Voun, 2020b).

Therefore, policymakers, educational institution leaders, and those in senior leadership roles should take advantage of the unexpected opportunities generated by COVID-19 by continuing to utilize ICT in ways that enhance learning and teaching in schools and universities across the country even when the pandemic is over.

To maximize the use of ICT, more attention, innovative policy interventions and increased investment should be directed towards encouraging and supporting the integration of ICT in the classroom settings, especially in rural areas where the digital divide and educational inequality are more pronounced (Flynn & Himel, 2020).

To bridge the digital divide (Oxfam, n.d.), both technological resources and human resources have to go hand in hand. Investment in both is a must if Cambodia is to truly realize the digital transformation of its education system.

Undeniably, in the era of the Fourth Industrial Revolution (see Chheang, 2018), Cambodia cannot afford to pay less attention to the digital dimension of its education system. Neither can it continue to lag behind its neighbors and other countries in the region in terms of education quality, research and innovation capacity, competitiveness performance, and human capital development.

Cambodia must continue to increase its investment in education (Kay, 2019), and it must begin to aggressively invest in digitalizing its education system to meet the needs of students who need to live and succeed in the digital world.

Other less developed ASEAN countries may also consider these suggestions.

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8. COVID-19: A catalyst for Cambodian higher education to adopt hybrid teaching and learning

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COVID-19 has forced the world to adopt online and distance learning and teaching on an unprecedented scale. Developed countries have had an advanced education system that can engage and support students' learning with technology for decades ago. For example, they use Moodle as a learning platform; they have an IT support team for lecturers and students, and they have e-learning resources to support research. What about developing countries like Cambodia? How about Cambodian higher education institutions? To what extent have they been adopting hybrid teaching and learning?

According to Charlier et al. (2006), hybrid teaching and learning is characterized by the presence in a learning environment of innovation dimensions linked to distance learning activities because it involves the use of a techno-pedagogical environment based on a complex form of mediatization and mediation. The term was introduced to conceptualize types of learning environments under the HY-SUP European project between 2009 to 2012 (Deschryver & Charlier, 2012). To my knowledge, I believe that this term might be new to the Cambodian context.

Hybrid teaching and learning environment has been categorized into six types (Type 1 to 3 focus more on teaching while Type 4 to 6 on learning) of learning environments based on the Hy-Sup project as follows (see Charlier & Lambert, 2019, p. 3):

- Type 1 “the Scene” Content-oriented “teaching” configuration, characterized by support courses and the availability of primarily textual resources.
- Type 2 “the Screen” Content-oriented “teaching” configuration, characterized by on-site support courses and the availability of numerous multimedia resources.
- Type 3 “the Cockpit” teaching configuration oriented to the organization of courses eased by the use of management tools and sometimes integration of interpersonal and reflexive targets.
- Type 4 “the Crew” learning configuration focusing on supporting the process of knowledge building and on interpersonal interactions.
- Type 5 “the Metro” learning configuration focusing on various forms of support and openness.
- Type 6 “the Ecosystem” learning configuration characterized by exploitation of a large number of technological and educational opportunities offered by hybrid systems.

Each type of the hybrid teaching and learning environment requires different levels of support and techno-pedagogy (the art of incorporating technology in designing teaching-learning experiences so as to enrich the learning outcome), as seen below (Deschryver & Charlier, 2012).

1. Type 1 (the Scene): teachers favor classroom teaching but provide educational resources for students to download;
2. Type 2 (the Screen): teachers mainly use the teaching and learning environment to make textual and multimedia learning resources available to their students;
3. Type 3 (the Cockpit): teachers make the most of the potential of technological tools in order to manage their teaching and interaction with students. This results in the frequent use of tools to integrate into teaching resources;
4. Type 4 (the Crew): teachers pay special attention to students’ learning progress by using interpersonal and reflexive tools to support learning, communication, and collaboration;
5. Type 5 (the Metro): teachers focus on supporting and guiding students, be open to external resources and actors, and leave some freedom for the selection of methods and learning pathways;

6. Type 6 (the Ecosystem): teachers make use of all the dimensions identified to characterize hybrid teaching and learning such as students' active participation (in-class and remotely), frequent and diversified use of technological tools, availability and production of multimedia documents, peer interaction, and openness of the system to external resources and actors, etc.

Preliminary results from research involving in-depth interviews conducted from June to September 2020 with 20 Cambodian lecturers who have been implementing hybrid teaching and learning in four universities and two institutes in Phnom Penh, Cambodia indicated that 10 courses were in Type 5 “the Metro” before COVID-19, and the 10 courses were in Type 6 “the Ecosystem,” based on the self-positioning tool used in the HY-Sup project.

According to Deschryver and Charlier (2012), lecturers who are in Type 5 “the Metro” focus on supporting, guiding, and giving some freedom of choices to students in terms of methods and learning pathways. Those lecturers who are in Type 6 “the Ecosystem” make use of all the dimensions identified in hybrid teaching and learning environment, such as being active in both asynchronous and synchronous learning, using technological tools frequently, promoting peer interaction, and being open to external resources and actors, among others. The results of the interviews also revealed that most lecturers used social media and online tools as learning platforms, making use of Facebook groups, Facebook Messenger, Telegram, and Google Classroom, among other tools, to engage students and share documents, information, discussion, and other learning opportunities because their university does not have a Learning Management System (LMS).

However, during the COVID-19 pandemic, data from the interviews show that almost all of the courses (95%) were upgraded from Type 5 “the Metro” to Type 6 “the Ecosystem” with little or no support from their institution regarding the use of technological tools and learning platforms. There were also problems with the lack of proper training on how to use the online learning tool, lack of a technical group to support lecturers, and the use of unlicensed tools (e.g., Zoom). Despite the lack of preparation by individual institutions, COVID-19 has forced them to immediately adopt online and distance teaching.

In short, COVID-19 may be considered as a blessing in disguise as it has pushed many Cambodian lecturers to learn to use and integrate technology into their teaching. The COVID-19 crisis is a wake-up call for university management teams to invest in developing a full-fledged learning platform, purchase licensed tools for both lecturers and students to use, and prepare annual training or professional development for the teaching staff. Importantly, COVID-19 clearly indicates that online learning may not be able to replace in-class learning, but it can be used to complement face-to-face learning and teaching through the use of techno-pedagogy.

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9. Online learning during COVID-19: Challenges and opportunities

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COVID-19 has forced learning institutions worldwide, including in Cambodia to shift from face-to-face learning to online or e-learning. It is a new experience for Cambodian teachers of this generation who remains reliant largely on face-to-face teaching in classes as a means to deliver lessons to students. To continue to provide education during the global pandemic, teachers immediately adopt online teaching without proper training or substantial experience. So what will be the outcome of this online learning?

No doubt, Cambodia is not really ready for online education, although this learning mode has for many years been implemented in advanced societies such as Australia, New Zealand, the United Kingdom, and the United States, among others. Threatened by the coronavirus disease, Som (2020) stated that many Cambodian teachers and students face the sudden challenge of having to swiftly make an adjustment to take up e-learning and teaching. This immediate shift is happening across the nation. According to Carado et al. (2019), the key issue concerning this unprepared adjustment is a lack of tools, resources, and knowledge of online learning and teaching. These challenges seem to be more severe in government-run schools, especially those in rural areas. Although some schools are equipped with ICT (information and communication technology), the ICT program tends to focus primarily on basic knowledge of using computer software such as Microsoft Word, Microsoft Excel, and Microsoft PowerPoint. Online learning, therefore, may not fit students' learning styles and backgrounds, potentially leaving some behind as they try to navigate the new online education.

It is worth noting that teaching students through online platforms is an inconvenient task for many teachers. Obviously, teachers need to receive

training first to be able to operate online learning programs effectively. For many of them, they will face an increased workload as they are required to produce lessons in the form of audios, videos, or slide presentations. They also need to use videoconferencing to communicate with their students.

Students with little experience of using online platforms may find some tools complicated to use to access various learning programs and upload their work online. They could feel restless to catch up with the many activities they need to complete during online learning. For example, having to deal with numerous tasks, students may probably experience less freedom for meaningful interactions with friends and classmates.

The reliability of the internet speed and the availability of the internet access are also a big problem. Technological infrastructure, including the internet connection, remains a huge challenge for many schools, particularly those in the countryside. While online learning is taking place, unequal access to education has been reported (Som, 2020). Some students might face grade repetition due to their inability to join online classes while each day is filled with new lessons.

Online learning, in other words, can cause students to lose self-control. As can be seen in other countries, some students might, for example, come up with ideas of trolls, sharing explicit images, streaming pornography, drawing crude images over instructors' slides, and producing interrupting noise while engaging in group conversations (McKenzie, 2020). This can make online learning frustrating for some students, potentially making them lose interest in attending online classes and doing assigned work. Besides, students can possibly cheat when doing exercises or tests online. They can ask someone else to complete the assigned tasks or copy answers from their classmates instead of completing the tasks by themselves.

The introduction of online education is a real challenge as it appears to be in stark contrast to students' pre-pandemic learning habits, predominantly taking place inside the classroom. Students may expect their teachers to stand in front of the classroom to deliver lessons to them. Som (2019) added that it has almost become a teaching norm that nearly every teacher has to spoon-feed learners who rely heavily on classroom-based instruction designed to guide them

through different stages of learning. Given this, participation in online learning during this critical time of the COVID-19 crisis may be like exploring an unknown isolated area for some students. As a result, online learning may not enable every student to acquire knowledge they need because they may experience discomfort, nervousness, and stress when they need to be alone in a quiet room with a computer, an iPad, or a phone to continue their online education.

Despite the challenges, online learning is an additional alternative way for education delivery enabled by technology (Strauss, 2012). The shift from offline to online learning has, however, been supported by the Ministry of Education, Youth and Sport in collaboration with UNESCO, the Cambodian Union of Youth Federations, and other private companies as well as non-governmental organizations. These concerned stakeholders team up to create various apps and promote e-learning to provide students with opportunities to continue their education. Though online education is new in Cambodia, there has been remarkable progress in terms of how teaching and learning can still take place amid the pandemic. Such an alternative learning and teaching method, although not without challenges, will help make learning easier for many students, especially those whose schools are far from their home. Online learning, thus, creates a new way to maintain interactions and education while learning in classroom-based settings is currently not feasible.

For students, one of the main benefits they will receive is independence. They can learn to manage their own learning. They can also gain more knowledge on various subjects and can study whenever they want, including the opportunity to take online courses and tests (Sen & Amaro, 2017). Online learning, in a sense, provides students with opportunities to interact with teachers, peers, and other students at almost any time.

Online learning, moreover, provides students with a window of opportunities to learn from anywhere. There are hundreds of online short courses, freely available for learners and other people to access whenever they want. Many courses are offered by famous universities such as Harvard University, the University of Oxford, and the University of Cambridge, among others. With the experience of engaging in online learning, more Cambodian students will be able to access online education with confidence. Online learning is, therefore, a

safe, cheap, and convenient way to gain more knowledge and skills needed for future careers and further studies.

In conclusion, online learning offers both challenges and opportunities. But given the lack of experience on the part of teachers and students in using online platforms, online learning is more likely to have produced fewer positive outcomes if compared with traditional classroom-based learning. Nonetheless, with more investment in this alternative educational mode, there will be an improvement in online education in the future. To enhance the quality and outcomes of online education, the Cambodian government should improve technological infrastructure, including the internet connection, in schools across the country. It should establish more partnerships with local and international organizations to expand and improve e-learning programs as well as access to them. Specifically, the government ought to strategize ways to make it easier and cheaper for students to afford digital devices such as computers or tablets so that they can reap benefits from online education during and after the COVID-19 pandemic.

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10. The role of ICT in sustaining online education during COVID-19

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The educational world is not exempt from the impact of Coronavirus (COVID-19). The United Nations Educational, Scientific and Cultural Organization (UNESCO) has recognized that the Coronavirus outbreak has increased the gap between educators and learners and has impacted the education sector globally (see Corlett et al., 2020; Wajdi et al., 2020).

According to UNESCO (n.d.), approximately one billion youth and students have been affected by the pandemic, and at least 165 countries have closed their schools. COVID-19 has, therefore, brought distress to the entire globe (Corlett et al., 2020). The education sector has been among the sector worst-hit by the pandemic. This creates many challenges for both teachers and students.

Onyema and co-researchers (Onyema et al., 2020) highlight that the responses to the COVID-19 pandemic have been varied from country to country. However, to contain the spread of COVID-19, most states authorized the closure of schools and universities. The lockdown has greatly impacted the livelihood of many people across the globe. Millions of people have had to stay at home, self-isolate, work, and study from home for at least a few months as a result of the virus outbreak.

In China, as university campuses were closed, 24,000 online courses have been initiated (Nabukeera, 2020). The Ministry of Education in China provided 1,291 national excellence courses to learners. Furthermore, 401 virtual experimental simulation courses were implemented via 22 different platforms. Many schools and universities postponed their pedagogical activities momentarily. In Malaysia, educational institutions were closed on 18 March 2020, causing interruption to about five million students (UNICEF, 2020). Many universities suspended their face-to-face teaching and instead

launched e-teaching and e-learning to offer students the opportunity to continue their education (UNICEF, 2020).

In Cambodia, the educational sector has also been severely hit by COVID-19. The Ministry of Education, Youth and Sport (MoEYS) initially announced that all educational institutions within Phnom Penh city and the Siem Reap province must close temporarily from March 14, 2020. Only a few days after the announcement, MoEYS, on 16 March, decided to close all educational institutions in the country (Sok & Sun, 2020), transferring all physical classes to online learning through television, Facebook, YouTube, Telegram, and websites.

The continuous spread of the virus remains a concern; the prolonged suspension of educational institutions will fundamentally interrupt students' learning and inhibit their future capabilities and career prospects. Likewise, the closure of institutional institutions will undeniably impede and slow educational targets (Corlett et al., 2020).

Onyema et al. (2020) highlighted that the closure of higher education institutions (HEIs), which helps contain the spread of the virus, has had major disadvantageous outcomes for millions of learners internationally, many of whom have been confronted with various challenges (Corlett et al., 2020).

Based on a study that analyzes undergraduates' responses to social media (Nabukeera, 2020), the challenges for learners do not emerge from technical obstacles. Instead, the problems are due to the lack of a good learning attitude, lack of self-discipline, inadequate education materials, or a good learning environment when they self-isolate at home. Students who lack these necessary foundations for learning and require extra support will no doubt suffer academically. Consequently, the academic disparity between students will be heightened.

Moreover, unplanned closures of educational institutions will undoubtedly cause severe issues for learners, educators, parents, and society at large. Notably, there have been effects on interest in learning and students' academic performance (Corlett et al., 2020). According to the US Centre for Disease Prevention and Control (CDC, n.d.), "longer [school] closures may result in more students congregating outside of schools." Brummet (2014)

states that educational institution closures are worrisome because it can have overflow effects on a large number of students receiving education. Further, there are significant effects on students with special needs and those with learning difficulties who regularly require more physical inspection and supervision from their teachers.

Due to the closure of schools and the suspension of face-to-face learning, a remote system of learning through appropriating existing technology has been implemented worldwide (Roberts, 2020). If such measures have not been put in place, there would be greater disruption to the global education. Through learning resources, including video conferencing applications such as Zoom, e-mail and social media, teachers and students are able to continue their teaching and learning activities (Kurniasih et al., 2018).

Furthermore, through online resources, educators and learners can access information, create supportive environments for education and have the opportunity for professional development (see European Commission, n.d.). Online platforms, mobile reading applications, self-directed learning content, collaboration platforms, live-video communication and other tools are being utilized to offer distance education solutions and digital education content to students (UNESCO, n.d.).

Thus, COVID-19 reminds us that ICT (information and communication technology) is a principal component of pedagogy in the 21st century. Another study by Onyema and colleagues (Onyema et al., 2019) highlighted that the expansion of technology adoption in education had enabled the adjustment of teachers' teaching techniques from the traditional to modern approach – allowing them to dispense knowledge more flexibly. Technology tools, in a sense, act more as mentors, facilitators, and motivators that can invigorate students, especially undergraduates, to be more engaged. The rapid development of ICT and its application as well as other digital services has a great influence on higher education institutions (Alkhafaji & Samea, 2020). These technologies play a pivotal role in promoting access to education as HEIs try to reach their targets to enhance the teaching and learning process.

However, the success of online education depends on several factors, including reliable internet connection, availability of learning software, digital skills of the participants, availability of resources, and access to

technology. The surge in online education has been motivated by the need for the continuation of education in light of COVID-19, as well as the success of technologies that enable and foster the learning process through online lectures, virtual classroom courses and other instructional materials and activities on the internet (Corlett et al., 2020).

No doubt, there are challenges in conducting online education, including the availability of ICT tools, lack of knowledge to manipulate ICT facilities, insufficient funds, language problems, or lack of training. Nonetheless, these difficulties can be overcome by formulating strategies to advance broader access to skills and competencies and amplifying supportive infrastructure facilities, including electricity and access to the internet (Amutha, 2020).

Overall, the coronavirus outbreak has driven millions of students to study from home. It has greatly affected educational activities across the globe. Some of the major impacts include educational disruption, inadequate access to facilities such as laboratories, employment losses in the institution sector, an increase in undergraduates' debts, decreased funding for pedagogy, research limitations, and decreased learning interests among learners (Corlett et al., 2020). However, it is suggested that undergraduate students should view this crisis as an opportunity to campaign for worldwide collaboration and share experiences as well as knowledge and resources to develop a global online education network (Nabukeera, 2020).

In brief, through distance learning mechanisms, ICT can be exploited to enhance students' learning accomplishment, although this improvement has not been universal (Chandra & Lloyd, 2008). In the context of a developing country like Cambodia, it is vital to increase technology awareness and familiarity, promote digital literacy and associated skills, as well as enhance access to internet connection and technological devices to enable students to succeed in their learning, especially in the time of the COVID-19 pandemic (see Bhuasiri et al., 2012).

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11. Self-directed learning: The way forward for education after the COVID-19 crisis

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Education in developing countries is generally grounded in a traditional paradigm in which teachers are a manager in the classroom (Newell, 2014), while students learn based on stiff, pre-determined content from textbooks mainly through surface learning (Wang, 2009). This conventional teaching philosophy can devastate students' creativity and sense of ownership, which contradicts the authentic and original learning concept that may take place without reinforcement from their teachers (Sammut, 2010). Thus, learning can be seen neither as an obligation nor a problem, but it is a way to exist in the world. Students learn as they desire to pursue their goals and engage in projects that are meaningful for them (Knowles et al., 2011). As a result, students can take the courage to learn independently and to create new ideas or products for their community – a real meaning of education.

During the outbreak of the COVID-19 pandemic, most of the countries in the world have no choice, but to abruptly close schools for the safety of students and teachers, and the community (Hoernke et al., 2020). In this critical situation, attending face-to-face classrooms is no longer available. The traditional roles of teachers as a manager or leader are less feasible, while the new role of teachers as a facilitator of students' learning should be further reinforced to foster self-directed learning amid the COVID-19 crisis. In this sense, students need to be in control of their own learning, which means they have to manage their own learning schedule and revise their learning strategies to adapt to this unprecedented situation.

Malcolm S. Knowles, a founding father of andragogy and self-direction in learning, wrote a book entitled "Self-Directed Learning: A Guide for Learners

and Teachers” (Knowles, 1978). In the book, Knowles has provided guidance for two main actors: teachers or facilitators and students. As the author notes, teachers should change their roles in the classroom from a leader to a facilitator as well as a source provider to give more chances for learners to acquire knowledge through consultation and questions. To foster self-directed learning and lifelong learning, eight elements of andragogy have been put forward (Caffarella, 1987, pp. 113-114).

1. Preparing learners (assist learners to be well-prepared for their participation),
2. Setting climate (informal, warm, mutually respectful, collaborative, and supportive),
3. Planning activities (establishing mechanisms for mutual planning by learners and the facilitator),
4. Diagnosing needs (conducting mutual assessment between the facilitator and learners for constructing learning models),
5. Setting learning objectives (mutual negotiation between the facilitator and learners),
6. Designing learning plans (focusing on problem solving and real life),
7. Operating learning activities (engaging learning programs through experiential techniques),
8. Evaluating program (mutual measurement of the program, and mutual re-diagnosing of needs).

Based on the concept of self-directed learning, learners should be proactive and have the desire to learn more things rather than be reactive and passive learners who learn from what has been taught (Brockett, 1991). No doubt, people have different views about learning. It is generally believed that learning takes place at school, but to be adequate for our strange new world we must come to think about learning as living (Knowles, 1978). This analogy implies that learners in the modern world should not learn only in the school, but they can learn from the surrounding people and environment in order to develop their education to a full-fledged one.

Considering the highly critical situation of the COVID-19 pandemic, self-directed or self-autonomous learning has played a crucial role in helping learners cope with problems and help them transform challenges into learning

opportunities. In a similar vein, once learners obtain the spirit and mindset as self-directed learners, they can learn in any places and circumstances without being constrained by external factors. As a matter of fact, distance learning seems to be no longer a big issue as learners are seemingly ready for their learning. Thus, promoting self-directed learning is an ideal way forward to improve the quality of education.

What is more, it is a necessity and an obligation of teachers to instill a self-directed learning mindset in students and to assist them in learning so that they can attain the real and meaningful education. Changing conventional ways of learning and teaching and adapting modern things are vital to learners' education in the future. As Alvin Toffler rightly notes, "The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn" (Toffler, 2018, p. 241). What he tries to imply is that in this contemporary world, being able to just read and write may not be enough for a person to cope with the ever-changing world. Therefore, learners have to step up their learning endeavors, forget the traditional and out-of-date knowledge, and start to learn new knowledge and skills.

To achieve the concept of "learn, unlearn, and relearn," self-directed learning is one of the most suitable approaches teachers should consider to stimulate today's learners to cultivate their real potential for learning. Hence, COVID-19 may be seen as a silver lining in the crisis that can foreground the significance of the concept of self-directed learning, which has the potential to empower learners to take advantage of numerous learning resources available on the internet. As learning through online platforms is time-consuming and usually tedious, students who have a self-directed learning or self-autonomous learning mindset should be able to sustain their learning motivation as they can gain experiences and learn new skills from the many sophisticated online platforms.

In a nutshell, behind the scene of the COVID-19 pandemic, there is a positive aspect for learning opportunities that can allow learners to benefit from online learning platforms and unlimited online resources using technology at their disposal. As a university lecturer, I personally believe that self-directed learning is for learners as they travel through their lifelong learning journey. Thus, ironically, COVID-19, which may be viewed as one of the key catalysts

for change, can push learners out of their comfort zone to take risks and explore something new (see Zhao, 2020). Through self-directed learning, knowledge and the possibility for innovation will be enhanced.

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12. COVID-19 and online learning: Challenges facing Cambodian students

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COVID-19 is a highly infectious disease caused by a new strain of coronavirus which was first discovered in China in December 2019 and has since spread around the world, causing great damage to the global economy and disruptions to all aspects of human life. It is one of the worst health crises that the modern world has ever experienced.

The latest figures by the Worldometer (2020) show that the total number of coronavirus cases worldwide was almost 25 million on August 28, 2020. Among these, 839,702 people have died, and around 17 million have recovered. In Cambodia, according to the latest report by the Ministry of Health of Cambodia, there were 273 cases of COVID-19. Fortunately, no one has died from COVID-19, and 263 people have recovered.

The situation of the COVID-19 pandemic is changing fast globally. Cambodia, one of the developing countries in mainland Southeast Asia, has been impacted by COVID-19 in ways similar to other countries in the region. All sectors in the country, including garment factories, private companies, bars, restaurants, schools, universities, and other service providers, have been disrupted and all levels of education from early childhood to higher education are also affected by the pandemic.

In May 2020, Net (2020), citing the Garment Manufacturers Association in Cambodia, reported that there were about 180 factories that had suspended their operations, wreaking havoc on more than 150,000 workers who were temporarily suspended from work. Many other workers in other sectors have lost their jobs, leading to a sudden increase in unemployment rate.

Meanwhile, the education system is one of the sectors adversely impacted by the COVID-19 pandemic. Schools and universities are still closed, although some private schools that can meet COVID-19 safety standards have been allowed to reopen (Uy, 2020). The Ministry of Education, Youth and Sport (MoEYS) has recently released guidelines for other schools to follow when they can reopen in September (Voun, 2020). Students of all levels in both public and private schools are, however, encouraged to stay at home and continue their education through distance learning and online video lessons supported by MoEYS.

MoEYS has tried to support students' education by immediately providing distance learning opportunities through a variety of online platforms and applications including Zoom, Facebook, Microsoft Teams, Google Classroom, and YouTube, etc. Furthermore, MoEYS has also cooperated with the Ministry of Information to broadcast live recorded video lessons on television across the country and official Facebook pages as well as YouTube channels of relevant stakeholders to help all students continue their learning (Pech, 2020).

Despite these initiatives, there are challenges as Cambodia still needs time to develop its education system. Although the number of internet users in Cambodia is increasing, some Cambodian students, particularly those in rural areas, still do not have access to the internet. According to a spokesman for the Telecommunication Regulator of Cambodia reported by Khmer Times, the number of internet subscribers in Cambodia grew by 20 percent to 16.1 million in 2019 (Khmer Times, 2020).

The internet speed in the city is relatively fast and acceptable, while the speed in rural areas is still slow and inadequate. Some families in remote areas cannot even afford to buy a smartphone for their children to study online. The situation is exacerbated by the impact of COVID-19 on their income. Some families even spend a lot of money to buy internet service on their phone to allow their children to continue learning. This makes them face great difficulties as regards their daily and monthly expense.

During the celebration of Teachers' Day in 2019, Samdech Krala Hom Sar Kheng, Deputy Prime Minister and Minister of Interior, stated that "despite the rapid development of technology, teachers still play an important role that

technology has not yet been able to replace, especially the ability and professionalism of teachers to manage the teaching process in the classroom” (Sar, 2019).

I agree with the above statement. Modern technologies can surely help students to learn; however, learning through television or smartphone live streams can sometimes make students feel bored and exhausted when they are spending hours sitting in front of the screen without student-teacher interactions that are available in the physical classroom. Moreover, students might find it difficult to ask questions when they do not understand the lesson. They may sometimes leave the online learning session to spend time on social media or on gaming and other applications not relevant to their lessons.

Thus, the effectiveness of online learning still has limitations if it is not effectively managed. Parents at this time really play an important role in controlling their children’s learning time; otherwise, their children might not focus on studying, affecting the outcome of their online learning.

In summary, the COVID-19 pandemic suddenly forces people across the world to change the way they live, work, and study. As the pandemic continues, people will have to adapt to a new way of living, working, and studying. For Cambodian students, they might have to adapt in order to continue education through online learning while they are waiting for schools to reopen.

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13. Rural primary education in Cambodia amid the pandemic: Challenges and solutions

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COVID-19 has forced educational institutions around the world to transition from face-to-face classroom to online learning and teaching. In Cambodia, all public and private educational institutions across the country were ordered to close in March, but some schools have been allowed to re-open by following strict safety standards to prevent the spread of COVID-19 (Uy, 2020). Despite efforts by the Ministry of Education, Youth and Sport (MoEYS) to offer video lessons via television, Facebook, Telegram, and YouTube channels (Pech, 2020), there are many challenges facing primary school teachers and students, resulting in many students' limited educational achievement. The following paragraphs illuminate these issues.

Challenges

There are many challenges. First, there is a lack of devices to access online video lessons and e-learning on television and other online platforms. The challenges are greater for rural primary school students. The dissemination of lessons on television is great, but it may not be effective for pupils living in rural areas. Some parents have lost their jobs while they have to spend a fortune to purchase a television, not to mention a computer, a tablet, or a smartphone with internet connection to access online lessons (see New Straits Times, 2020; OECD, n.d.). Some parents who have faced financial problems before the pandemic are having more difficulties during the outbreak of COVID-19. Thus, many children in rural areas may have lost the opportunity to continue their education because their parents cannot afford appropriate technological devices for them.

Second, teachers have faced great challenges when students are frequently absent from small group gatherings arranged by schools in the community. For example, teachers are more likely to find it frustrating and hard to assign tasks and facilitate lessons for those who have missed lessons provided through small groups. Although some teachers try to send homework to the absent students through their friends, who come to collect the assigned tasks, the outcome from them remains limited. Perhaps this issue relates to the financial condition of students' parents. In the period of the pandemic, some students might unconsciously spend time working instead of studying; that is, they become a workforce to help their parents' work in farms and fields.

Third, the inability of some pupils to take part in distance education is more likely to contribute to their inadequate academic performance. Frequently absent pupils, who find it hard to study online, will not be ready to catch up with others in the next grade. This may result in grade repetition. When schools re-open, there might be some educational problems if teachers are to keep teaching more lessons from the course books without taking the time to help those who are absent. It may also result in learning boredom. Therefore, primary school students in remote areas whose families are struggling financially may not be able to sustain their education. This may lead to higher drop-out rates as their learning is not well progressed due to poverty and other unfortunate circumstances (The ASEAN Post, 2020). As a result, COVID-19 may create more challenges for Cambodia to achieve its vision to provide education for all (see Prigent, 2018).

Solutions

The Ministry of Education, Youth and Sport has done a lot to provide students with the opportunity to continue their education amid the pandemic. However, access to online lessons and resources is still an issue for pupils from poverty-stricken families. MoEYS and local education departments should consider working with school principals and community chiefs to seek and ask for help from any families that have more than one TV. If this approach does not work, MoEYS and local education authorities should consider buying a TV set and install in a safe place, managed and scheduled by schools to allow small groups of children to learn from televised lessons.

Many primary school students will potentially be able to access lessons broadcast on television if there is facilitation by teachers and the community. However, the matter of hygiene and sanitation needs to be strictly adhered to (see New Straits Times, 2020). Teachers need to ensure that students maintain physical distancing and encourage the use of masks, scarves, and alcohol-based hand rub to prevent the viral spread (see WHO, 2020).

For students who are frequently absent from small group gatherings, teachers can visit their homes to offer clarification and help if necessary. Also, working closely with village chiefs and commune leaders is a must-do thing to offer intervention and motivation to some parents who tend to ask their kids to help with work at homes or on the farms (Globalteer, n.d.). Those parents should be encouraged to let their sons and/or daughters go to collect homework from their teachers to do self-study. Intervention by the local authority provides a sense of pressure on parents, which will enable them to try their best to allow and push their children to continue their study during the COVID-19 pandemic.

Concerning the lack of lesson engagement with teachers, MoEYS, supported by the local education departments, school principals, and classroom teachers, should discuss the possibilities of providing additional training to any pupils who are unable to fully take part in distance learning as well as self-study (UNESCO, n.d.). The length of training should be short, lasting between 15 and 30 days with appropriate assessments to make sure students are ready for the next lessons. Such a strategy will likely play an important role in maintaining students' readiness and allowing teachers to prepare other lessons and assessments to support those who have been absent from small group gatherings or unable to access online lessons. Obviously, this is an opportunity for them to catch up with others as well. If those young learners who have lost the chance to interact with their teachers and classmates during the pandemic are not scrutinized and taken care of, their long-life learning journey will be impacted. This will create further educational inequalities (Flynn & Himel, 2020).

In sum, rural primary school teachers and students in Cambodia have faced great challenges in trying to offer and receive education amid the COVID-19 pandemic. Adequate measures and solutions should be taken to remedy the

situation to ensure students in Cambodian primary schools in far-off regions can maintain their education, which will contribute to addressing the educational inequalities which have been exposed during the pandemic. Any solutions will be helpful for these disadvantaged students who are in need of support that can allow them to receive the appropriate education they need to ensure their future success.

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14. What is needed to implement hybrid teaching and learning in Cambodian higher education

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The COVID-19 pandemic is far from over although infection rates have dropped in some countries. This crisis severely affects all aspects of life, including education. According to a report by the International Association of Universities (Marinoni et al., 2020), COVID-19 has affected higher education around the world in areas such as communication, new enrolments, policy development, government support and partnerships, teaching and learning, international student mobility, exam planning, and scientific research.

There are many questions that pop up as the world moves toward a post-COVID-19 era; for example, what will education be like in the future? How could we strengthen the education system after COVID-19? Who plays a key role in improving the quality of teaching and learning? These questions look simple, but ‘simple’ does not mean easy.

Because of COVID-19, education system across the world has been abruptly changed to distance teaching and learning or online learning. This new teaching and learning method shapes individuals’ views of online learning. Some see it positively, while others see it negatively. It is like when you and others are sitting in front of the TV watching the same movie together. The view is the same, but the interpretations of the movie may be different.

The COVID-19 pandemic seems to be a mirror that can be used to reflect on the quality of teaching and learning, management system, and leadership skills, especially on how to provide a safe school environment during COVID-19 and what to do after COVID-19.

In Cambodia, the education sector is undergoing ongoing developments. Over the last decade, the country's education system been found to suffer from a lack of quality in teaching and learning, skills mismatch (ADB, 2015), corruption, a shadow of education (a fee-paying for extra classes) (Brehm, 2016), inadequate school infrastructure, poor school leadership capacity, and insufficient support budget (McNamara, 2015).

In retrospect, there were not many university students who were able to afford a personal computer or laptop in the 2000s. University infrastructure was not good enough in terms of internet connection, WiFi, university email accounts for students, LCD projectors, and other materials to support teaching and learning. The lack of teaching and learning resources was common. For example, Vann (2012) noted that there were out-dated textbooks in the library, lack of access to electronic journals, slow internet-speed, and inadequate laboratory facilities for science classes.

Despite these, the quality of education appears to have improved after the Ministry of Education, Youth and Sport (MoEYS) introduced a number of projects, including a reform to the Grade 12 national examination in August 2014 (Everett & Kaing, 2014) and the implementation of a World Bank-funded project, called Higher Education Quality and Capacity Improvement Project (HEQCIP).

Amid the COVID-19 pandemic, there is an opportunity for further integrating online learning into the Cambodian education system. The integration of online learning into mainstream classrooms, called the Hybrid Teaching and Learning Environment (HTLE), should be the way forward after the pandemic. In this article, I will elaborate on some elements that should be considered in the implementation of HTLE in Cambodian higher education institutions (HEIs) in the post-COVID-19 world.

Needless to say, Cambodian HEIs have recently been forced to develop and implement Hybrid Teaching and Learning Environment to address the impact of COVID-19. According to Charlier et al. (2006), the term "hybrid teaching and learning" is characterized by the presence in a learning environment of innovation dimensions linked to distance learning activities because it involves the use of a techno-pedagogical environment based on a complex form of

mediatization and mediation. The term “mediatization” is the engineering of training and design pedagogy (functions of device training). It involves the processes of designing, producing, and implementing media communication devices. For “mediation,” it refers to the process of transforming human behaviors and knowledge to fit the functions of the device (Deschryver & Charlier, 2012).

Since COVID-19 has created a profound impact on the economy, culture, communication, and education system around the world, there are some essential elements to be considered in introducing hybrid teaching and learning in higher education. They include, among others, annual training and professional development opportunities for teaching staff, incentives for using hybrid teaching and learning, technical support, and learning infrastructures such as stable internet connection, WiFi, applications, and Learning Management System (LMS).

To ensure the success of HTLE, all teaching staff should be encouraged to take part in professional development opportunities such as national and international workshops, seminars, and symposiums to improve their current teaching skills, knowledge, and values. All of these are required to develop pedagogical innovation. Obviously, this is not an easy task for individual higher education institutions in countries like Cambodia because the majority of teaching staff in Cambodian higher education are based on part-time contracts.

Williams et al. (2016) highlighted that “many Cambodian higher education institutions, particularly private ones, have hired a very limited number of full-time teaching staff” (p. 179). The author further noted that, in Cambodia, “a majority of teaching staff are part-time lecturers, and the institutions have not provided appropriate and sufficient training opportunities and support to these part-time lecturers” (p. 179). Many part-time lecturers moonlight – teaching or working for more than one university. Perhaps one of the solutions to address this issue is to recruit full-time teaching staff or offer professional development opportunities to part-time faculty members. This approach, however, requires individual institutions’ policies and willingness.

Moreover, to implement HTLE successfully, there should be incentives for lecturers who are integrating hybrid teaching and learning into their classrooms. The incentives do not necessarily have to be money or an increase in teaching rates but should be a level of freedom to provide online or distance teaching when they are busy or unable to go to class due to certain reasons such as heavy rain. For example, lecturers may be allowed to offer online or distance teaching to their students a few times in a semester, so they can use this allowance for online teaching to conduct virtual classes when they think fit. By doing so, this could help both lecturers and students to learn to engage with each other virtually and be more accustomed to online learning and teaching.

It is crucial to note that a technical support team and learning infrastructure are essential elements to enhance the quality of online teaching and learning. This technical support team must be approachable, responsive, and helpful. Individual higher education institutions should therefore have an effective technical support team that can provide assistance with technical issues, such as installing software for teaching and learning, introducing LMS (e.g., Moodle, Canvas, and Chamilo), and creating school email accounts for both lecturers and students for official use. The school email account should be used to connect to the internet and WiFi on university campuses so that lecturers and students can communicate, collaborate, and share information. A stable internet connection should be available to promote self-study and research among students and staff.

In a nutshell, to improve the quality of education requires concerted efforts, hard work, clear vision, effective management, and active involvement from different stakeholders from a macro to a micro level. Since HTLE is rather new to the Cambodia context, it is impossible to change and improve the status quo overnight. Obviously, we need participation from individual institutions as well as strong political commitment and willingness to walk the talk to improve the education system. One way forward is that the government needs to increase the education budget, further promote capacity building among higher education staff, and invest in research and development to nurture a culture of research and innovation.

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15. Cambodia needs to increase investment in online education

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The COVID-19 pandemic has caused shocking and far-reaching effects on the education of millions of students all around the world. It has forced schools and universities to shut down as countries applied staged lockdown measures to contain the spread of COVID-19. In Cambodia, all public and private schools from kindergartens to universities across the country were ordered closed in mid-March (Sok & Sun, 2020). All of a sudden, online learning has become the country's only means for the continuation of education for Cambodian students.

By resorting to online learning or e-learning, Cambodia has been able to continue to provide education to 3.2 million students (Som, 2020). The flexibility and adoption of online education were ad hoc and therefore posed new challenges. Problems with the lack of access to online learning platforms have led to further unequal opportunities for learning. The inadequacy of infrastructure for online education has also left a great number of students in rural areas behind, while poor technological skills among many education staff throughout the country have made online education a cumbersome job to do. All of these mean that more than three million students have to wait for the coronavirus period to pass before they could return to normal face-to-face lessons.

The old normal is not going to happen anytime soon, given the current situation, although the Ministry of Education, Youth and Sport (MoEYS) has allowed many schools and public universities to reopen. MoEYS has been faced with real pressure to digitalize the education system overnight, mainly to respond to the disruption to education when the COVID-19 vaccine is yet to be manufactured. In this situation, reforms to traditional classrooms and

pedagogy are needed in order for Cambodia to catch up with that in the region and in the rest of the world.

As a national institution responsible for the education of Cambodians, MoEYS needs to continue to work with partners and the private sector to create special apps and websites for teachers and students to use. These online platforms have played a fundamental role in modernizing teaching and learning in Cambodia. Teachers and students can access these platforms at any time via smartphones or other electronic devices. However, students in rural areas still face challenges in accessing these platforms because some of them who come from low-income families are unable to purchase digital devices to use for their educational purposes (see Flynn & Himel, 2020). The internet accessibility is another obstacle as students in remote parts of the country may not have access to the internet or electricity. Thus, MoEYS needs to step up and work with all relevant stakeholders to improve access to online education nationwide.

In addition, technical teams must be formed to help with technological issues and enable the smooth operation of online education. Technical staff should be able to play various roles, including introducing and maintaining a digital learning system, training teachers, and students to use it, fixing or improving the system based on feedback from users, and giving consultation and technical assistance to principals, teachers and students. As e-learning specialists and operators, each member of the technical team should be well-trained and equipped with knowledge of the teaching and learning process. More importantly, they should have good communication skills and know how to encourage, empower, and engage with teachers and students enthusiastically to build trust among the system users.

What the government must do is to continue to invest in online education on a national scale to ensure that all children can learn during and after the COVID-19 crisis without significant interruptions. Key partners and groups such as UNESCO, UNICEF, Cambodian Union of Youth Federation and other partners including NGOs and private companies can provide the support necessary to establish robust online learning systems that schools and students across the country need.

I argue that Cambodia's education system will transform itself and begin to catch up with the rest of the world only when technology is utilized to help students learn in a modern way. Modern learning devices such as smartphones, tablets, and computers as well as a good internet connection with national coverage are needed. Across the world, online education systems have been widely used to support students' learning. To enhance its competitiveness, Cambodia must increase its investment in education, including online education, as this country needs capable human resources required to achieve its development vision (see Heng, 2020).

In short, Cambodia must continue to invest in online education infrastructure and engage in deep education reforms to improve the education system that can produce quality human capital to drive economic growth. It is, no doubt, vital to modernize the education system that has long been regarded as underdeveloped, characterized by the lack of quality and innovation. Cambodia needs to prioritize the development of its education system and ensure that all Cambodians, especially the young, are provided with equal opportunities to receive quality education.

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PART III: SCHOOL LEADERSHIP AND EDUCATION REFORM

16. Understanding the significance of instructional leadership and school principals' roles and responsibilities

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Education is the cornerstone of development in any country. This statement applies to Cambodia where poverty and illiteracy rates are relatively high compared to other Southeast Asian nations (Sadaka et al., 2018). The quality of school leadership plays a vital role in enhancing the quality of education, often equated to the quality of teachers and school principals.

In 2013, a policy on school teachers, called Teacher Policy, was adopted by the Cambodian Ministry of Education, Youth and Sport (MoEYS) to initiate a comprehensive reform in order to improve the national education system by laying out the roles and responsibilities of teachers, principals and local education authorities (MoEYS, 2013). To achieve competencies required of teachers as spelled out in the Teacher Policy, including pedagogic, personal, social, and professional competencies, leadership in schools must be taken into account.

Principals are important leaders at the school level. They have many functions to contribute to the improvement of the teaching and learning process (Fessehatsion, 2017). They also have many day-to-day duties and multiple roles (e.g., managers, administrators, curriculum leaders and instructional leaders) that they perform each day. Besides, they have often been regarded as important individuals whose leadership performance generally has a significant impact on school performance and specifically on the quality of teaching and learning.

Instructional leadership is unique to the education field as it is closely related to curriculum, student learning and teacher performance. It is a critical role

played by principals whose actions and decisions significantly affect teachers and students' achievement (Blase & Blase, 1999; Hallinger & Murphy, 1985).

Hoy and Miskel (2013) note that instructional leadership places a particular emphasis on teaching and learning improvement. School principals as instructional leaders attempt to change important school factors such as curricular content, teaching methods, and assessment strategies for academic achievement. Also, instructional leadership consists of behaviors that (1) establish high expectations and clear goals for both teachers and students' performance, (2) monitor and provide feedback on the technical fundamentals (i.e., teaching and learning), (3) provide and promote professional growth for all staff members and (4) help to create and maintain a school climate for high academic success (Blase & Blase, 1999; Hallinger & Lee, 2013).

Practically, Hallinger and Murphy (1985) developed a model of instructional leadership employing three dimensions: defining schools' mission, managing the instructional program, and promoting a positive school learning climate. Subdivisions of these dimensions are illustrated in Figure 16.1 below:

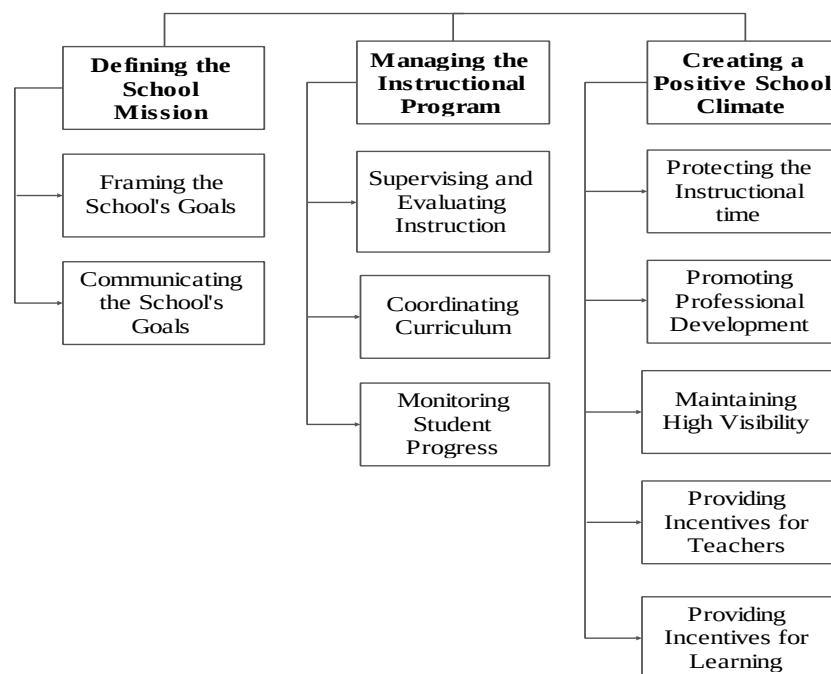


Figure 16.1. Instructional Management Framework (Hallinger & Murphy, 1985)

In the first dimension, Hallinger (2009) listed several characteristics of instructional leaders' role in defining a clear mission for schools:

First, at this school the mission was absolutely clear. It was written down and visible around the school. Second, it was focused on academic development *appropriate to the needs of this particular school population*. Third, the mission set a priority for the work of teachers. Fourth, it was known and accepted as legitimate by teachers throughout the school. Fifth, the mission was articulated, actively supported, and modeled by the principal. (pp. 8-9, emphasis in original)

In the second dimension, school principals are involved with stimulating, supervising, and monitoring teaching and learning in the school. In other words, this dimension focuses on "the coordination and control of instruction and curriculum" to ensure the achievement for every student (Hallinger, 2009, p. 9).

In the third dimension, the focus is on the norms and attitudes of the staff and students that influence learning in school. According to Watana and Sattapong (2019), school climate is "widely recognized as made up of order and discipline, relationship building with teachers and parents, and involvement in the affairs and life of the school." Notably, effective schools create an "academic press" through the development of high standards and expectations for students and teachers (Hallinger, 2009, p. 10).

Thus, school principals have many roles to play. It is hoped that this short article can enable school principals in Cambodia to reconceptualize their roles and responsibilities, particularly those related to instructional leadership. Understanding these roles and responsibilities is an important step toward the promotion of learning and teaching quality in schools.

In short, this article has highlighted the roles and responsibilities of school principals and their significance for students' achievement. If school principals use their leadership to develop an organizational climate where academic and intellectual pursuits are central to the school, students' achievement will be improved.

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17. New Generation Schools in Cambodia: Aim and focus

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Introduction

Kampuchean Action to Promote Education (KAPE) is a large local nonprofit organization that began operation in Cambodia in 1999. KAPE's projects have directly benefited up to 71,000 students from 165 schools in 13 provinces in the Kingdom (KAPE, 2020). Notable among these projects is a piloting school reform from traditional to a so-called New Generation School (NGS) program which began in 2015 and is supported by the Ministry of Education, Youth, and Sport (MoEYS). The NGS program is aimed at preparing and producing Cambodian 21st century citizens through the provision of a high-quality learning and teaching workforce (KAPE, 2020).

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

Aim of New Generation Schools

The enrolment rate of primary and low secondary learners with private schools in the capital increased by 30-50% while this trend also happened in the provincial schools (Bredenberg, 2014). Bredenberg maintained that issues regarding instruction quality, teacher's career pathway, remuneration, and school accountability are questionable, and therefore the establishment of the NGS program is to provide a leading educational standard to students from all

socioeconomic status (Bredenberg, 2014). Moreover, the notion of the NGS program is to (1) develop a system and culture of highly qualified teachers and (2) provide a vigorous professional development activity to teachers, so that they will employ the trained knowledge and skills to innovate and develop their students' 21st century skills (Donaher & Wu, 2020; MoEYS, 2016). To achieve the program goals, the NGS program has focused on the following key elements.

Innovative curriculum and instructional practices

To shape NGS's robust teaching and learning workforce, MoEYS laid out intensive policy guidelines such as restructuring curriculum; adapting materials use and the curriculums' aims regarding knowledge, skills, and attitude; creating e-lesson plans allowing for innovative lesson delivery; and increasing weekly teaching hours to 34 (primary students) and 40 (for secondary graders) (MoEYS, 2016). Moreover, KAPE has run its own Pedagogical Research Center (PRC) co-supported by MoEYS. The center offers a Master of Education in Mentoring program. Graduates from the program will be allocated to facilitate the teaching and learning process: they will act as classroom mentors to enrich teaching performance and students' learning outcomes (MoEYS, 2020b). On the contrary, the practice of adding up more teaching hours to traditional schools is problematic. As research has shown, the mentoring activity by school principals rarely happens in those school sites (No, 2020; Tao et al., 2018).

Technology and school facilities

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

classroom participants to feel comfortable, and they may treat school like their second home (MoEYS, 2020a).

STEM and ICT skills

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

Teacher professional development activities

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

The program has adopted "study visits" by sending their selected teachers to do school visitation outside the province and in overseas countries, particularly Thailand. The visits include classroom observation that allows them to pick up best teaching practices, classroom decoration, and technological knowledge. Bo et al. (2019) argued that study visits kept teachers' teaching practice up to date: they may compare and share their own practice with other teachers. Oftentimes

some teachers receive feedback and guidance from their principal or teacher mentors after classroom observation. Research has found that mentoring helps teachers to learn quickly and timely from classroom feedback (No, 2020; Tsybulsky & Muchnik-Rozanov, 2019). The last professional development activity is PLC: it is a teacher-learning platform where they show up to share their teaching tips and techniques in fostering classroom achievement. It has become the common practice at NGS (Bo et al., 2019; MoEYS, 2019), and it was an efficient professional development activity (Mundy et al., 2015).

Conclusion

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

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18. What is Learning Management System (LMS)?

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An invitation to submit proposals for research grants was extended to the public earlier this week by Cambodia's Ministry of Education, Youth and Sport (MoEYS) in an attempt to foster a research culture in the Kingdom. Among the three prioritized areas listed in the announcement was a focus on 21st century pedagogy and virtual classrooms, a form of Learning Management System (LMS) that can receive funding support from the government (MoEYS, 2020). Individuals and groups who are interested in this research area are invited to present their research proposals which will be reviewed and selected for funding through a scheme worth 300 million riels (about US\$75,000) allocated to fund research that aims to produce a comprehensive learning management system.

In this unprecedented time of COVID-19, educators and students in Cambodia have turned to modern technology to continue teaching and learning while keeping themselves safe from the COVID-19 pandemic. Taking advantage of a technology-supported learning system such as a Learning Management System in schools is therefore necessary to minimize the disruption caused to Cambodia's public and private education.

LMS is an important contribution to education. It was first introduced in 1924 to both K-12 and tertiary education (Chaushi et al., 2015, p. 185). This tool is known for helping teachers and school staff to work more productively and effectively from a distance while making use of technology of our time. Given the COVID-19 crisis making face-to-face education a health risk, Cambodia's education system needs LMS more than ever before to allow teachers to provide their students with education opportunities.

Existing examples of how LMS works have been witnessed in schools with international education programs in which students acquire curriculum content and technological knowledge through teaching and learning facilitated by LMS. However, in general, due to inadequate infrastructure and human resources, LMS had been ignored until the nationwide closure of schools and universities across the country in March. In what follows, the article aims to explain what LMS is.

LMS refers to a software application designed to set up, share, and administer the delivery of educational content (Zheng et al., 2018). It can be designed and hosted on an institution's server, or it can be on a cloud-based platform hosted by a software company. Making teaching and learning more productive, cost-effective, and tractable, LMS enhances, and accelerates students' progress. This system operates with administrators or teachers uploading learning content, delivering lessons to students with notifications, and sharing data with authorized users. LMS mostly runs on a web browser, giving students and instructors access to ongoing courses, while learning progress is constantly monitored to assess students' learning.

Various types of LMS, such as Enterprise, Individual, Free or Commercial, Licensed Product, Cloud-based or On-premise and Integrated or Built-in are different platforms and resources which may not be replaced with one another. The particular type of LMS chosen for an institution should be carefully piloted before putting it to use. For this reason, the learning content should be well developed before instructors start to import it into the learning system.

A wide range of learning materials such as PowerPoint presentations, pictures, videos, and interactive lessons can be used with LMS. Outstanding benefits students can receive from this platform are that they can adapt easily to their learning regardless of the nature of the lesson. Also, they can easily interact and cooperate online with their peers and teacher. Students are exposed to corporate culture and become increasingly aware of branded presence while their teacher can always integrate the system with other tools to scale it up as the education institution continues to grow.

Features of LMS are available and can be adjusted for extra purposes such as making notes. A built-in analysis segment for checking students' performance

is also available. Depending on users' needs, LMS is designed to make learning accessible, interesting and engaging.

There are other features of LMS that keep different user population interested. To illustrate, the learning product for primary school students is completely different from that for secondary school students. Whatever type of LMS is adopted in school, its functional features should be cost-efficient. Choosing the right LMS for long-term needs is highly important.

According to Zheng et al. (2018), certain LMS features may include:

- A central user portal for all users, administrators, and course creators to securely login and complete tasks.
- Experience an application programming interface (API) compliant content management system built-in for authoring content and adding elements.
- LMS training system that involves event management and scheduling capabilities that direct users through specific learning plans.
- Certificates, learning badges and profiles that learners can share to prove their knowledge.
- Automated test scoring and performance management systems based on users' behaviours.
- Live classroom and webinar environments for remote instructors and students, client presentations and more.
- Technical and course development support, including built-in tutorials and lesson plans.

Schools with LMS in place can provide all learners with an equal learning opportunity, regardless of their different learning styles. Although investing in LMS can be costly and time-consuming, the benefits are clear. It does not only provide easy access through mobile devices, but it also makes setting up of any learning pathways or training programs fast and orderly. In addition, it can gather learning resources from different sources while providing a progress analysis of every learner. Additionally, the system can be used to inform future events such as scheduling or invitations and giving follow-up support.

In short, LMS can keep students on track in spite of school closures caused by the pandemic. Even schools with poor facilities can start using built-in LMS

such as Google Classroom or free software such as Schoology. Alternatively, they can start to develop their own LMS system. School administrators in Cambodia should, therefore, support instructors or teachers to design digital learning content and update their pedagogical skills by learning how to use features of LMS to ensure students' active learning so that they will not fall prey to technology. The adoption of LMS or technology should continue even after the pandemic.

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PART IV: CURRICULUM, ASSESSMENT, AND RESEARCH

19. Curriculum, curriculum types, and curriculum management: An academic reflection with a personal conviction

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Introduction

What should be taught at school has been a critical inquiry for many relevant stakeholders in education. Another important query is what a country intends to produce or what the objective of education is. According to Ornstein and Hunkins (2018), the objective of education is to enable the citizens of a country to mobilize upwardly and to reconstruct the society. Whenever there is reconstruction, there is a development of society, which in turn needs the change in education or curriculum (Wiles & Bondi, 2015). In my opinion, the objective of education is for the survival and growth of the citizens of a country, emphasizing their ability to be competitive and mutually beneficial in the locality and beyond.

The goals of education are controversially divided into four characteristics: vocational, social, intellectual, and personal (Kovin, 2018). Kovin contended that the purposes of schooling/curriculum, the sub-sect of education, include three interrelated elements: political development, social development, and economic development. Notably, social changes and the growing body of knowledge of individuals have resulted in changing curriculum, especially new visions of school purposes (Wiles & Bondi, 2015). Once these new visions develop, curriculum would be arranged, organized, and translated (Wiles & Bondi, 2015; Zais, 1976). Many educators may have wondered what a curriculum is and how to effectively and successfully manage it to accomplish educational goals.

This article aims to define curriculum and curriculum management, illustrate three types of curriculum based on the author's conviction, and offer a definition of curriculum management.

What is curriculum?

There is no perfect single definition of "curriculum." According to Wiles and Bondi (2015), curriculum is like a "racecourse" because learners begin from the starting point till the endpoint of a program. Given that learners can learn from everywhere not only from print documents or from school, the definition of curriculum should not just be a product or an experience. In the past, it was everything learned in the program, including course guides, syllabi, or textbooks. Now curriculum can be seen as a plan for learning, visionary aspects, the intended purpose of education in society, and the process of structuring the curriculum itself (Wiles & Bondi, 2015).

A broader meaning of curriculum refers to:

1. Plan of action for learners (such as content, structure of chapters of the book, etc.)
2. Field of study (process and procedure, such as "curriculum development and curriculum change") (Zais, 1976).

Taba (1962, as cited in Ornstein & Hunkins, 2013), tried to compromise the definitional concept of curriculum as aspects of the learning process, curriculum development activities, and specific methods of teaching. Curriculum, according to Caswell & Campbell (2006), refers to a planned program of studies and "hidden curriculum" as well as all educational experiences learners encounter under the auspices of the school, which has been well taken by many curriculum specialists.

The four intertwined components of curriculum are objectives, contents, organization, and evaluation (Wiles & Bondi, 2015; Zais, 1976). Curriculum has currently become the field of study which concerns various curriculum development process such as analysis, design, implementation, and evaluation, all of which are also under the purview of curriculum management.

Types of curriculum

Different types of curriculum have been designed and developed, namely a content-based curriculum, discipline-based curriculum, student-based curriculum, standard-based curriculum, competency-based curriculum, outcome-based curriculum, and the like with their different purposes in education (Wiles & Bondi, 2015; Zais, 1976). However, I would categorize them into three types: the *intended*, *implemented*, and *attained* curriculum, each of which will be explained below.

Intended curriculum is initially associated with the educational policy or educational purposes (from macro/national to micro/school levels) and with the first and second components of curriculum objective identification and content selection/organization as well as curriculum analysis and design. The curriculum leaders must make the intended curriculum or innovation clear and uncomplicated because not many people are willing to do new things if they are not precise. Truly, it is common that no one is interested in encountering complicated process in their professions. To make people welcome the innovation, they need to understand its worth, usability, and quality.

Regarding the *implemented curriculum*, it requires the actual implementers, mostly responsible instructors, to fully understand it before delivering the contents or organizing learning experiences. In education, various stakeholders such as faculty members, administrators, students, consultants, supervisors, principals, state employees, university instructors, parents, lay citizens, and political officials can involve in curriculum implementation. Each bears diverse responsibilities. For example, a school principal may take a leading role in revising the old vision, missions, or strategic plans to align them with the new educational goals of education at the national level. Faculty members can form a committee to provide support, train responsible curriculum implementers, and communicate with them. To successfully implement a curriculum, it is more than just submitting new courses and materials. It needs committees and their active involvement thorough planning and engagement of teachers (who also need supports) and other key players. The trust from the community is also needed.

Implementers or school leaders can gather data and reflect on the success or effectiveness of the innovation through monitoring and evaluation. This process is called *attained curriculum*. In reality, evaluation is not a one-off approach, for curriculum development is recursive and demands a continuous, cyclically formative, and summative assessment.

Curriculum management and educational management

Management is literally defined as “the process of dealing with or controlling things or people” (Oxford Dictionary, n.d.). In the educational context, though management, leadership and/or administration are used interchangeably, they have been used in different parts of the globe. For example, Britain, Europe, and Africa tend to use “management,” yet Australia, Canada and the United States seem to prefer “administration” (Bush, 2006, 2007). To manage an educational institution, school leaders face numerous challenges, including the balance of advanced/cognitive tasks designed to foster the performance of faculty staff, students, and schools; habitual operations; and lower-order responsibilities or tasks.

According to Sapre (2002, p. 102), “Management is a series of actions and tasks relevant to highly well-organized and effectual application of resources within the organization in order to attain organizational objectives.” Cutbert (1984, as cited in Ghasemy & Hussin, 2014) categorized educational management theories into five groups: “analytic-rational, pragmatic-rational, political, phenomenological and interactionist models” (p. 2), while Bush (2007, p. 2) raised four theoretical elements of educational management categorized under six clusters: “formal, collegial, political, subjective, ambiguity and cultural models.”

In light of these categorizations, knowing and understanding the function of educational management provides educators with the concepts and strategies on how to administer the curriculum, control the process, and/or deal with people involving in implementing the curriculum in an educational organization.

Curriculum development and its process are part of curriculum management which has four essential components: analysis, design, implementation, and

evaluation. According to (Sawekngam, 2017), threats or matters affecting the curriculum development are problems from the stakeholders (teachers, students, managers/ responsible supervisors in an organization, experts in the field, parents, and the community); problems of the curriculum development process (policy, command, political intention, preparedness of resources, expenditure, supports, follow-up processes, curriculum evaluation, economy, cultures, technology, changes in society); and other influential factors (stages of determining goals and subject matters as well as experiences; stages of curriculum implementation, including understanding the curriculum and prospective materials and contacting relevant personnel; stages of curriculum evaluation; and stages of curriculum improvement and change).

Thus, curriculum management takes all sorts of crucial stages in the curriculum field, including the curriculum development process. In this respect, curriculum stakeholders need to study the entire educational institution and consider the needs of a society; educational policies; schools' vision, missions, and goals; the curriculum framework and its model; the curriculum design, process, and evaluation; and the results of students' learning.

Concluding remarks

Curriculum management, having the curriculum development as one of its subsets, acts as a lens through which to examine the whole dynamic curriculum process. To perform curriculum management successfully, effectively, and efficiently, responsible individuals are required to be knowledgeable, capable of discerning the concept of curriculum and its vital components, having both leadership and management skills, and knowing when and how to apply such skills in their school setting so that the students can achieve the pre-determined curriculum objectives or at least there is evidence of growth in both students and society.

In brief, although there seems to be no clear definition of curriculum management, the concept can be defined as a systematic educational management process aimed at ensuring the achievement of the identified curriculum objectives with the goal of making a positive and transformative impact on the society and attaining educational goals of a nation.

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20. Formative assessment: Using feedback to improve student learning

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What is formative assessment?

Assessment is viewed as having a vital role in the learning process because it helps improve student academic achievement through its meaningful and collaborative feedback. There are two main types of assessment: formative and summative. Formative assessment is also known as assessment for learning (Clarke, 2014; Wiliam, 2013). According to Torrance and Pryor (1998, p. 8), formative assessment is “generally defined as taking place during a course with the express purpose of improving pupil learning.” Using a gardening analogy, Clarke (2001) describes formative assessment as feeding and watering plants to affect their growth.

Another interesting definition of formative assessment is given by Black and Wiliam (1998) who defined formative assessment as “all those activities undertaken by teachers, and/or by their students, which provide information to be used as feedback to modify the teaching and learning activities in which they are engaged” (p. 1). Boston (2002, pp. 1-2) sees formative assessment as a “diagnostic use of assessment to provide feedback to teachers and students over the course of instruction.” Despite a range of different definitions given above, formative assessment needs to be ongoing, frequent, and interactive for the purpose of assessing student progress, understanding and identifying learning needs, and adjusting teaching approaches and instructions.

Purposes and benefits of formative assessment

Several texts in the academic and practitioner literature have confirmed the power of formative assessment in guiding student learning (William, 2004). Danielson (2013) makes an interesting remark that “formative assessment is no longer regarded as a nice thing for teachers to do if they have the time; it is now regarded as integral to teaching itself” (p. 196). In this regard, formative assessment is for in-classroom assessment activities that aim to shape or guide learning activities. It is not used as a standard assessment to anticipate student performance. Fundamentally, formative assessment is seen as all activities undertaken by both teachers and students to obtain the necessary information that can be used deliberately to adjust teaching and learning. Boston (2002) firmly expresses that:

When teachers know how students are progressing and where they are having trouble, they can use this information to make necessary instructional adjustments, such as reteaching, trying alternative instructional approaches, or offering more opportunities for practice. These activities can lead to improved student success. (p. 9)

Black and William (1998) reviewed 250 journal articles and book chapters concerning formative assessment to see if it raises students’ academic standards in the classroom; their extensive review revealed that formative assessment brings about learning gains. Formative assessment is generally considered internal to the classroom, and while it may be seen as informal, it can be systematic. Teachers use it to discover their students’ strengths and weaknesses based on their performance so that proper adjustments to teaching and learning can be made or strengthened (Danielson, 2013). It is believed that formative assessment can be diagnostic because obtained information can be used diagnostically to adapt teaching and learning in order to meet student needs (Black & William, 1998; Boston, 2002; Danielson, 2013). With this information, “teachers are able to ascertain where each student is in his or her learning, and which aspect(s) of the desired learning has not yet occurred” (Danielson, 2013, p. 197).

Feedback as a form of formative assessment

Feedback is an essential aspect of formative assessment involving three fundamental stakeholders, including teachers, students, and their peers. Feedback in the learning process is usually viewed as information given to students and/or teachers about students' performance in order to provide guidance for improvement. Ramaprasad (1983) and Sadler (1989) as cited in Boston (2002, p. 2) assert that "feedback given as part of formative assessment helps learners become aware of any gaps that exist between their desired goal and their current knowledge, understanding, or skill and guides them through actions necessary to obtain the goal." In formative assessment, feedback information needs to be used. Feedback should be focused on specific qualities of students' work, with useful guidance on what students can do, and should stay away from comparing students with one another (Black & Wiliam, 1998) because any feedback that threatens students' self-confidence will bring about negative effects (Clarke, 2014). Furthermore, comparisons have a direct impact on students' self-efficacy or how they perceive their abilities (Clarke, 2003).

It is sometimes misunderstood that feedback is only something that teachers provided to students. On the contrary, feedback is also provided from students to teachers, and even from their peers. Hattie (2012) argues that feedback from students to teachers is most powerful because it makes learning visible. He notes that:

Feedback is most effective when students do not have proficiency or mastery - and thus, it thrives when there is an error or incomplete knowing and understanding. Errors invite opportunities. They should not be seen as embarrassments, signs of failure, or something to be avoided. They are exciting because they indicate a tension between what we now know and what we could know; they are signs of opportunities to learn, and they are to be embraced. (pp. 139-140)

It is worthwhile to bear in mind that feedback can also have negative effects if it is not given in a way that helps students to learn better. For example, Boyle and Charles (2013) argue that it is pointless to give students feedback if it is treated as "noise" or regarded as needless rather than as information to help them understand, remember, absorb knowledge, or develop skills. However,

many of the feedback comments given by teachers do not achieve this aim; consequently, it leads to negative effects on students' performance. Therefore, Boyle and Charles (2013) suggest that feedback be effective when it takes place on a regular basis and when teachers have an explicit understanding of how students work and how they take in contributions external to their own thought processes.

Moreover, it is believed that the more students get involved in feedback, the more effort they will make, and the more likely the feedback will be effective. Simultaneously, feedback needs to consist of information about students' progress and how to get going (Boyle & Charles, 2013). Another negative aspect to be kept in mind is that traditional forms of feedback have, in many cases, led to a regression in students' learning progress; one of those is giving grades for every piece of work (Black & Wiliam, 1998). However, there are many more complex aspects, such as the teacher's tone of voice and body language used with students (Clarke, 2003). Therefore, as advised by Broadfoot et al. (2002), teachers need to be aware of the impact that comments, marks, and grades might have on students' self-confidence and enthusiasm. As much as possible, the feedback they give should be constructive.

Characteristics of constructive feedback

Ovando (1994), who sees feedback as a two-way process, conceptually advocates that constructive feedback should have the following characteristics:

- Relevant: Addresses student and teacher-specific achievements, needs, and interests as well as specific learning and teaching behaviors,
- Immediate: Provided as soon as information about student and teacher performance is available,
- Factual: Based on actual student achievement (performance on a test, assignment, or project) and teacher's instructional behaviors,
- Helpful: Provides suggestions for improvement of teaching and learning,
- Confidential: Given directly to student or teacher without an intermediary,
- Respectful: Respectful of student's and teacher's integrity and needs,
- Tailored: Designed to meet an individual student or teacher's specific needs and circumstances, and

- Encouraging: Motivates student and teacher to continue and to increase teaching and learning efforts. (p. 21)

Hattie (2012) suggests several ways that feedback can be provided:

Feedback can be provided in many ways: through effective processes, increased effort, motivation, or engagement; by providing students with different cognitive processes, restructuring understandings, confirming to the student that he or she is correct or incorrect, indicating that more information is available or needed, pointing to directions that the students might pursue, and indicating alternative strategies with which to understand particular information. (p. 129)

Benefits of comment-only feedback

Feedback can be given on both oral and written work in the form of oral and/or written feedback. It can be comments, marks or grades. There have been a lot of discussions and arguments regarding how feedback is given. Research has shown that students who received feedback by comments gained more improvement in learning than those who received it by marks, grades, or a combination of marks or grades with comments (Black et al., 2002; Black et al., 2003). Another positive aspect of comment-only marking was that it helped parents pay more attention to their children's learning issues rather than trying to understand a mark or grade (Black et al., 2002).

The above findings indicated that students became more involved in improving their work when they received comment-only feedback. These findings shocked some teachers because they could not believe how it would be possible to give feedback by using only comments (Black et al., 2003). Nonetheless, it would be useless if teachers give only a numerical mark and do not tell students how to enhance their work because, in so doing, students lose the opportunity to improve their learning.

Conclusion

This article advocates that assessment lies at the heart of good teaching and learning. Formative assessment, an integral part of the assessment, plays a vital

role in the process of effective teaching and learning. Previous research studies have indicated that formative assessment would enhance students' achievement if properly utilized. Information from formative assessment, particularly feedback from teachers to students and from students to teachers, helps teachers adjust and modify their teaching and learning activities so as to fit the needs of students. At the same time, students can be more active in their own learning because they know what and why they are trying to learn (learning intentions) and what is expected of them (success criteria).

To provide students with meaningful feedback, teachers should be trained to be good classroom observers. They should be able to collect meaningful information about their students' learning and use that information to enhance the learning process and inform their teaching practices simultaneously. The practice of providing comments as a form of formative assessment can be time-consuming and demanding for teachers. However, as confirmed by research, it makes a remarkable difference in students' learning progress and in their ability to become self-confident and critical learners. Students are more likely to achieve more through formative assessment.

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21. School-based intervention strategies for children with Attention-Deficit Hyperactivity Disorder

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Introduction

ADHD stands for Attention-Deficit/Hyperactivity Disorder. It is known as one of the most common neurobehavioral disorders in children. Fox (2001) points out that ADHD is a term used to present people with behavioral impulsivity and low self-control and attention levels. There can be many reasons why a child becomes inattentive and disruptive in class; however, those presented with these behavioral problems can be regarded as possessing a form of ADHD (Meyer & Lasky, 2017). ADHD can significantly affect children's physical and emotional well-being, academic achievements, and interactions with others. Children with ADHD appear to experience significant difficulties in a range of functions. Even though impulsivity, inattention, and overactivity are common, they can serve as an attraction to other difficulties (DuPaul & Stoner, 2003). DuPaul and Stoner emphasize that children with ADHD frequently experience low academic achievement, a high level of non-compliance and aggression, and poor relationships. This social and emotional impairment dramatically affects the quality of their life (Wehmeier et al., 2010).

Therefore, understanding children with ADHD and taking appropriate interventions to support them are crucial to their future success. This article offers some suggested school-based intervention strategies to support children with ADHD.

There is no single exact cause of ADHD that can be fully understood. According to the National Health Service (NHS) of the United Kingdom, a combination of causes/factors is believed to contribute to ADHD, including genetics, brain

function and structure, and other possible causes (NHS, 2018). The genes inherited from parents are an undeniable factor that explains the condition. Research indicates that both parents and siblings of children with ADHD are four to five times more likely to have ADHD themselves (NHS, 2018). However, it is difficult to understand how ADHD is inherited. Some differences in brain function and structure are also found in children with ADHD compared to those without ADHD (NHS, 2018). Other possible causes of ADHD include premature birth, low birth weight, brain damage, smoking and misuse of drugs during pregnancy, and exposure to highly toxic levels (NHS, 2018).

Even though we can identify some characteristics of ADHD, it is not easy to be diagnosed because it is a highly hereditary neurobiological problem characterized by behavioral difficulties that may vary in intensity. Environment, attitude, and internal motivation can influence behaviors (Meyer & Lasky, 2017). Therefore, a child must be rigorously assessed. The American Psychiatric Association (2013) provides a comprehensive list of criteria that can be used to diagnose ADHD (see Appendix).

Suggested school-based intervention strategies

Many studies reported that children diagnosed with ADHD experience considerable challenges in their academic life. They are at significant risk for poor academic achievement, behavior, and social interaction; therefore, a systematic and ongoing school-based approach is necessary to help them succeed in school (DuPaul & Stoner, 2003). From here onwards, some suggested school-based intervention strategies to support children with ADHD will be discussed. The discussion will be based mainly on the work of DuPaul and Stoner, who are leading researchers in the field of special education.

Self-management strategies

Self-management is one of the effective school-based intervention strategies used to help ADHD children develop appropriate self-control levels. It is expected that this strategy will be able to equip ADHD children with age-appropriate behaviors, both socially and academically. DuPaul and Stoner (2003) discuss two approaches associated with self-management strategies.

They are self-monitoring and self-reinforcement. Many children diagnosed with ADHD are capable of performing desired behaviors; however, they cannot perform stably for a certain period of time because of personal issues with self-control (Brock et al., 2010). DuPaul and Stoner (2003, p. 166) claim that ADHD children “can be taught to observe and record the occurrence of their own behaviors” during academic work. For example, teachers can use auditory or visual stimuli periodically throughout a certain period of time to remind the children to observe their current behavior. Then children can be asked to record their instances of on-task behavior using a grid or chart. With regard to self-reinforcement, it requires that children set their goals, self-assess, and evaluate their own performance. This approach may be appropriate for ADHD children at the secondary level (DuPaul & Stoner, 2003). For example, token reinforcement programs and teachers’ feedback are often used for the self-reinforcement. However, designers of the self-management strategies must be aware that ADHD children may lack the skill to judge and evaluate their own behavior; hence, they need to know how to use the system and be aware of the behaviors expected of them (DuPaul & Stoner, 2003).

The teaching of classroom rules and expectations

Children with ADHD will learn best when clear classroom expectations are fully communicated (Henderson, 2008). For better management of behaviors, the teaching of classroom rules and expectations is imperative. Because ADHD children can quickly become disruptive, teachers must keep reminding them about the rules and expectations so that they can stay on the right track and get engaged in the classroom. For example, teachers can (1) prompt students of expected behaviors before commencing classroom activities, (2) assure that every academic and non-academic activity and classroom routine are clearly communicated with and understood by students, (3) use nonverbal signals to redirect a student while working with other students, and (4) regularly communicate their expectations about the use of time blocks (DuPaul & Stoner, 2003).

Study and organizational skills

Several studies reported that ADHD children usually experience difficulties in fulfilling tasks, organizing learning materials, following instructions, and

studying for exams (DuPaul & Stoner, 2003). Therefore, teaching them study and organizational skills will benefit them. Henderson (2008) recommends some necessary study skills for ADHD children to be taught. They include using Venn diagrams to demonstrate and arrange main concepts or information, taking notes of key concepts, creating an academic checklist for frequently made mistakes and homework supplies, and so on. For organizational skills, Henderson (2008) suggests that teachers teach the children to use assignment notebooks to organize schoolwork and homework and use color-coded folders for different academic subjects and other purposes. Even though many strategies have been suggested and proved to be effective, teachers should select appropriate strategies that are workable in their own classroom contexts.

Peer tutoring

Peer tutoring is one of the most effective school-based intervention strategies to assist ADHD children and even children without this disorder with their academic progress. Peer tutoring is a flexible, peer-mediated strategy that involves students serving as academic tutors and tutees (Hott et al., 2012). Peer tutoring allows ADHD children to receive necessary one-to-one assistance, gain more opportunities to respond in small groups, obtain more time to engage in tasks, and develop personal self-esteem. Peer tutoring will be most effective when participating children are guided appropriately (Greenwood & Delquadri, 1995; Piffner, 2011).

Computer-assisted instruction

Computer-assisted instruction (CAI) is an intervention strategy that is believed to be useful for teaching ADHD children. CAI involves the use of computer programs or software to support classroom instruction. CAI has been used to develop students' knowledge and skills and enhance their academic performance (Miller, 2002). Alontaga et al. (2012) advocate that CAI provides ADHD children with a highly stimulating instructional environment where children gain immediate feedback on their performance, reinforcement, and ongoing opportunities to respond to academic stimuli. A study that investigated the effects of using math software called "Math Blaster" with three primary male students identified with ADHD indicated some significant

decreases in off-task behaviors because the three students appeared to engage more with the software (DuPaul & Stoner, 2003).

Task modification

Task modification (TM) is used to enhance the academic performance of children identified with ADHD. TM involves reviewing aspects of learning (curriculum) to lessen inappropriate behaviors and increase proper classroom behaviors. However, Meyer and Evans (1989) argue that TM responds more positively only to the personal needs of individual students. Choice-making is one form of TM. It requires students to select activities from two or more choices. Studies investigating the effects of choice-making on students with developmental disabilities have shown rises in social behaviors and reductions in excessively active behaviors (Dyer et al., 1990; Koegel et al., 1987 as cited in DuPaul & Stoner, 2003). Another study conducted by Dunlap et al. (1994) examined the effects of choice-making on three students; one of them was a 12-year-old male ADHD student. The outcomes indicated that choice-making led to increased trustworthy task engagement and decreased overactive behaviors.

Instructional modification

Instructional modification (IM) is a necessary intervention strategy for teaching ADHD children. Modifications in instruction can be carried out to improve the academic environment, especially for children with ADHD. A study conducted by Skinner and his colleagues (1995), as cited in DuPaul & Stoner (2003), examined the effects of two taped-words, fast-taped words (FTW) and slow-taped words (STW) intervention on word-reading performance based on accuracy rates. The study results indicated that there were relatively greater accuracy rates in STW intervention, suggesting that this intervention strategy be effective in promoting reading accuracy rate for ADHD students.

Strategy training

Strategy training involves teaching students to use a particular set of strategies to complete academic work in demanding academic situations (DuPaul & Stoner, 2003). This strategy seems suitable for adolescents with ADHD, as they are likely to present poor organizational and study skills. For example, students

with ADHD may face difficulties in note-taking for future review. Spires & Stone (1989) developed a note-taking strategy widely known as Directed Note-taking Activity. Students can learn this note-taking skill through teacher-directed presentation/speech and prompts. It is believed that this note-taking strategy can level up on-task behaviors and academic performance of ADHD adolescents.

Contingency contracting

Contingency contracting, sometimes known as classroom behavior agreement, is another school-based strategy for behavior management. It involves negotiating a contractual behavior agreement between a student and a teacher. Agreed behaviors are typically set along with positive and negative consequences when the desired behaviors are met and not met, respectively. However, this strategy is relatively straightforward and might not be suitable for ADHD children aged under six due to some factors such as inadequate rule-following skills and an inability to delay reinforcement for a longer time (DuPaul & Stoner, 2003).

Conclusion

Children diagnosed with ADHD face plenty of difficulties in their classroom behavior and academic performance, resulting in low academic achievement, complicated social interactions, and other behavior-related consequences. Regardless of any disorder labeling, each child has different needs and learning styles; they respond differently to different strategies and learning environments. Therefore, well-established school-based intervention strategies, including behavioral and instructional strategies, are required to ensure that every ADHD child's chances for academic success are maximized. It is crucial that all stakeholders, including schools, parents, and the community, work together to support ADHD children in their pursuit of academic and social success. Moreover, other interventions, such as medical interventions, behavior-related therapy, good parenting program, etc., should be used along with school-based interventions.

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Appendix: Diagnostic Criteria for ADHD (American Psychiatric Association, 2013, pp. 59-60)

People with ADHD show a persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development:

1. Inattention: Six or more symptoms of inattention for children up to age 16, or five or more for adolescents 17 and older and adults; symptoms of inattention have been present for at least 6 months, and they are inappropriate for developmental level:
 - a. Often fails to give close attention to details or makes careless mistakes in schoolwork, at work, or with other activities
 - b. Often has trouble holding attention on tasks or play activities
 - c. Often does not seem to listen when spoken to directly
 - d. Often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (e.g., loses focus, side-tracked)
 - e. Often has trouble organizing tasks and activities

- f. Often avoids, dislikes, or is reluctant to do tasks that require mental effort over a long period of time (such as schoolwork or homework)
 - g. Often loses things necessary for tasks and activities (e.g., school materials, pencils, books, tools, wallets, keys, paperwork, eyeglasses, mobile telephones)
 - h. Is often easily distracted
 - i. Is often forgetful in daily activities
2. Hyperactivity and Impulsivity: Six or more symptoms of hyperactivity-impulsivity for children up to age 16, or five or more for adolescents 17 and older and adults; symptoms of hyperactivity-impulsivity have been present for at least 6 months to an extent that is disruptive and inappropriate for the person's developmental level:
- a. Often fidgets with or taps hands or feet, or squirms in seat
 - b. Often leaves seat in situations when remaining seated is expected
 - c. Often runs about or climbs in situations where it is not appropriate (adolescents or adults may be limited to feeling restless)
 - d. Often unable to play or take part in leisure activities quietly
 - e. Is often "on the go" acting as if "driven by a motor"
 - f. Often talks excessively
 - g. Often blurts out an answer before a question has been completed
 - h. Often has trouble waiting his/her turn
 - i. Often interrupts or intrudes on others (e.g., butts into conversations or games)

In addition, the following conditions must be met:

- a. Several inattentive or hyperactive-impulsive symptoms were present before age 12 years
- b. Several symptoms are present in two or more setting, (such as at home, school or work; with friends or relatives; in other activities)
- c. There is clear evidence that the symptoms interfere with, or reduce the quality of, social, school, or work functioning
- d. The symptoms are not better explained by another mental disorder (such as a mood disorder, anxiety disorder, dissociative disorder, or a personality disorder). The symptoms do not happen only during the course of schizophrenia or another psychotic disorder.

22. Factors influencing academics' research engagement and productivity: A comprehensive framework

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Research productivity of academics has been a topic of research interest for many years. Numerous research studies have examined factors that influence research engagement and productivity of academics or researchers; however, most of these extant studies have focused on academics based in developed countries, commonly referred to as academics in the Global North (Heng et al., 2020).

Previous studies examining factors or determiners of research engagement and productivity have generally employed a theoretical or conceptual framework that categorized different factors into two main groups: personal or individual and institutional or environmental (Heng et al., 2020).

Factors of personal/individual nature may include age, gender, academic rank, discipline, research knowledge and skills, research orientation, motivation, collaboration, and research self-efficacy, while institutional/environmental factors consist of such factors as institutional research policies, research infrastructure, research culture, research rewards and incentives, opportunities for research collaboration and professional development, availability of mentoring system and research leadership, among others (see Bland et al., 2005; Heng et al., 2020).

With a few exceptions (e.g., Bland et al., 2005; Tien, 2016), most previous studies that investigated academics' research engagement and productivity did not use a more comprehensive framework of factors that have a potential influence on the level of research engagement and productivity of academics, particularly those operating in the context of developing societies or the Global South

(Heng, et al., 2020). In these societies, commonly characterized by resource-scarce environment, academics face numerous challenges that prevent them from fully engaging in research and publication activities (see Altbach, 2003; Canagarajah, 2002).

To address this knowledge gap and offer insights into factors that influence academics' research engagement and productivity from a developing countries perspective, Heng et al. (2020) conducted an extensive review of literature on factors associated with academics' research engagement and productivity. The aim was to develop a comprehensive framework of factors that influence research engagement and productivity of academics.

Based on a review of 65 empirical studies conducted in different contexts, the authors found that "the majority of studies on this topic have been carried out mainly in Western, developed contexts or emerging economies such as South Korea and China." Moreover, the various factors that influence research engagement and productivity can be categorized into "three broad levels: individual, institutional, and national" (Heng et al., 2020, p. 968).

Factors at the individual (micro) and institutional (meso) levels are the same as those mentioned above. However, factors at the national (macro) level are generally excluded in past studies, most of which dealt with researchers or academics based in developed countries. These national-level factors include national research policies, politics, culture, academic freedom, government support or investment, and support from the private sector, development partners, and donor agencies (Heng et al., 2020).

In their article, entitled "Factors influencing academics' research engagement and productivity: A developing countries perspective," Heng and co-researchers developed a framework of factors influencing academics' research engagement and productivity, as seen in Figure 22.1.

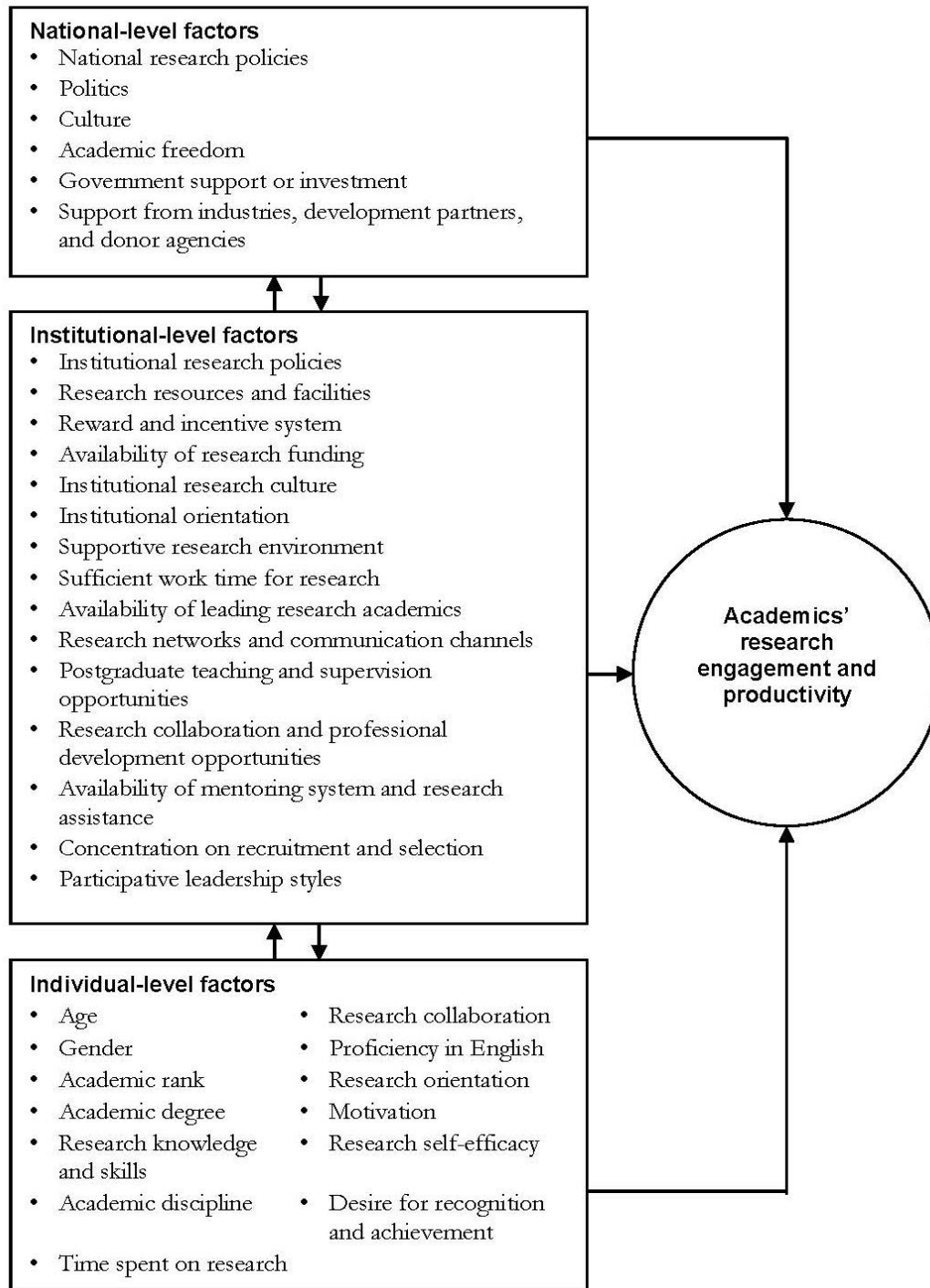


Figure 22.1. Framework of factors influencing academics' research engagement and productivity (Heng et al., 2020)

This comprehensive framework, the authors noted, may be best employed to understand the relationship between different factors that have an influence on research engagement and productivity of academics who are based in developing societies.

Overall, Heng et al. (2020) concluded that the results of their review pointed to the North-South inequalities in knowledge production that leave Global South scholars underrepresented in top international journals and in the global academic community. The authors called for further research that employs in-depth interviews, large sample sizes, longitudinal methods, or mixed methods approaches, to provide deeper insights into the contextual realities in which periphery scholars live and work.

As these South-based scholars are trying to contribute to the international academic community despite the many constraints facing them, Heng et al. (2020) argued that “the uniqueness of contexts, perspectives, and local knowledge coming from researchers in the Global South” should be accorded greater recognition and appreciation (p. 976).

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23. Conclusion: Key challenges in working with novice Cambodian writers and researchers

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Introduction

Many research studies have indicated limited research engagement among Cambodian academics. About a decade ago, Chen et al. (2007) reported that almost 90% of Cambodian lecturers who participated in their survey never published any research articles. Recent survey research by Eam (2015) and Kitamura et al.'s (2016) confirmed the limited engagement in research and publication among Cambodian lecturers. Eam (2015), for example, found that 65% of 444 Cambodian lecturers did not involve in any research at all. Other studies by Kwok et al. (2010), Moore (2011), Keuk (2015), CICP (2016) also discussed, albeit with a different scope and focus, the state of academic research in Cambodia. The consensus that can be drawn from these studies is that Cambodian lecturers or academics lack the necessary research knowledge and skills that can allow them to actively engage in academic research and publication.

Recent research by Ros and Oleksiyyenko (2018) found a lack of synchronization of policies across different levels: superstructure (national), structure (institutional), and understructure (departmental or individual). They further found that professional development workshops or training programs for lecturers at a major public university were “mostly spontaneous, eclectic, irregular, or irrelevant” (p. 32), and there were no clear personnel development plans, both of which contributed to limited academic competence of many Cambodian lecturers.

According to Moore (2011), major barriers to Cambodian academics’ active involvement in research included time constraints, limited access to scholarly resources, limited knowledge of research methods, and inadequate institutional support for research (see also Keuk, 2015). Specifically, a key barrier is linked with teaching overloads as many lecturers have to moonlight at multiple universities or institutions to make extra income (Ros & Oleksiyyenko, 2018). These barriers are coupled with their lack of willingness to commit themselves to academic work (Oleksiyyenko & Ros, 2019).

However, based on our practical experience working with many Cambodian teachers, academics, and novice researchers, we hypothesize that one of the major barriers to their limited research engagement is their limited knowledge and skills in academic writing or skills in English for research publication purposes (see Flowerdew, 2013). In what follows, we discuss the challenges we have encountered in editing the articles for Cambodian Education Forum (CEF) in general and for this volume in particular.

Key challenges in working with novice Cambodian researchers

There are a number of challenges we have faced in working to support our fellow Cambodian researchers, lecturers, teachers, and students. Since the inception of the Cambodian Education Forum in July 2020, we have received, reviewed, and edited around 40 articles. Of these, around 30 articles have been published, while some 10 articles are pending with the authors as they have yet to return the revision we have suggested.

In this edited volume, we included 21 articles (also called chapters). These chapters have been anonymously reviewed by two reviewers and have gone

through a few rounds of revisions. Having worked closely with the contributors to this book and other contributors to CEF, we found that few were able to produce a coherent and well-written text on their first draft. Many required a few rounds of editing work before their article could reach a standard deemed acceptable for publication by our editorial team. Perhaps this is understandable, given their limited experience in research and academic publishing. Although there are challenges related to our email correspondence with them, major challenges we have faced are mainly linked with their general academic writing skills, particularly language use, word choices, referencing and citation skills (both in-text and reference list), coherence and cohesion, and the use of reference sources.

For example, as an associate editor for Cambodian Education Forum, Koemhong Sol elaborates on the challenges he has faced as follows:

A key issue I have often encountered when I review or edit articles submitted by novice Cambodian researchers or writers is the random use of less credible sources from the internet to discuss or support their arguments. The use of less credible sources, from the perception of reviewers/editors, could mean that the argument in the submitted article is not convincing enough or less reliable and that the article is not thoroughly researched.

He adds:

Unlike printed or digital academic resources such as books, edited volumes, and scientific journals found in the library databases, anything goes on the internet because anyone can put up something on their personal webpages or blogs. That is the pros and cons of the internet. Much information is written by neither academics nor experts and is not thoroughly evaluated or reviewed. Therefore, to some extent, it cannot be used for scholarly purposes due to issues related to a lack of accuracy and reliability.

Obviously, there are many reliable and solid academic resources (e.g., open access journals and e-books) on the internet published by universities, research institutes, think tanks, well-known publishers, and well-recognized

organizations such as the World Bank. Some of these scholarly resources are available on Google Scholar or institutional websites. However, these credible sources have often been overlooked or not properly consulted. Some novice Cambodian researchers or writers used materials from general websites and less credible sources such as Wikipedia. Perhaps this was due to the convenient practice of accessing any information by searching for it on Google, or it was caused by the insufficient ability among some new Cambodian researchers to evaluate online resources and perform advanced searches on the internet. Also, it is probably due to their lack of access to the library database, a common problem in Cambodia where universities are not subscribed to major databases such as Scopus, Web of Science, Science Direct, ProQuest, and ERIC (CICP, 2016; Kwok, 2010)

Sopheap Kaing, a CEF co-editor and co-founder, shares the challenges the CEF team has faced in the following statement.

There are many challenges we have faced. Since CEF is a new platform to promote research and publication, we have tried our best to reach out to potential contributors or writers to invite them to write opinion pieces or short research articles for us. After we sent more than 10 invitations, only a few people happily accepted the invitation and submitted their articles, whereas a majority of potential contributors we invited turned down the invitation by either rejecting or ignoring it. This problem, however, could not stop our strong desire and aspirations to promote research and publication in our country.

He further adds:

Now, our efforts have paid off. We have built a good image in the public's eye. We have received regular submissions from researchers, lecturers, teachers, and students who want to publish with us. However, this creates a challenge. For example, we have to deal with a lot of administrative work such as managing our website, Facebook page, Twitter account, Telegram groups, and email. These tasks, coupled with the reviewing and editing work, require a considerable amount of time and efforts to complete. All of these time-consuming tasks are done while

we are doing our PhD degree. Therefore, in a sense, there is a shortage of time and human resources to do this important work.

Finally, Kimkong Heng as a CEF co-founder and lead co-editor shares the following reflections.

There are many challenges we have faced. However, the main challenge involves the amount of editorial work to do to improve the quality of the articles so that they are acceptable for publication. The process requires hard work and the ability to review and edit the articles. As a lead editor, I need to try to carefully read each article to understand the meaning and to make sure the flow of arguments is appropriate. In addition, I spend a considerable amount of time editing the language and making suggestions on what and where the author can add or remove to improve the article. Most articles had to go through a few rounds of editing before they were ready for publication. Very rarely did we receive fine submissions that required minimal editing work.

Overall, the key challenges we have encountered in working with novice Cambodian writers and researchers are mainly related to their limited academic writing skills, their indiscriminate use of reference materials, their referencing and citation skills, and perhaps their overall lack of interest in research and publication.

Conclusion and implications

The anecdotal evidence presented here suggests that there is a long way to go for a strong research and publication culture in Cambodia to take shape. To nurture a striving research culture, greater efforts and policy initiatives are needed to address deficiencies in policy misalignment across different levels; promote stakeholder collaboration; enhance research knowledge and skills of Cambodian students, teachers, and researchers; improve institutional research infrastructure; increase academic salaries; and address the limited social appreciation of research (see Heng, 2020; Heng & Rautakivi, 2020).

In addition to tackling all these issues, one of the most viable ways forward is to offer ample opportunities for young writers and novice researchers to write

and publish their work so that they will be able to learn the ropes of academic publishing. No doubt, it is vital that new and emerging Cambodian writers and researchers can receive support, particularly editorial support, so that they can build their confidence and maintain their interest in research, writing, and publication.

Building a community of research practice takes time and efforts. While the interest and commitment to research on the part of the researchers are crucial, the provision of support, including writing support, to young researchers is indispensable. The challenges we discussed above indicate that professional development or research mentorship programs are needed to support young or less experienced Cambodian researchers to build the requisite knowledge and skills that they need to pursue their research and publication endeavors.

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