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To What Extent does the Cambodian Education Curriculum Prepare Students for a Knowledge-based Economy?

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Key Messages

- ◆ Cambodia needs to upgrade the current labour-intensive, low-skilled workforce to an innovative, high-skilled one if its vision to become a knowledge-based economy is to be materialized.
- ◆ General education curriculum policies stress “student-centered” or inquiry-based learning that aims to produce an adaptive and innovative workforce with “higher-order” cognitive skills required by a knowledge-based economy.
- ◆ However, the textbooks at upper-secondary education level chiefly feature “lower-order” thinking contents and activities.
- ◆ This requires an overhaul of the textbooks or usage of extra material to enhance the active learning elements if the desired workforce is to be obtained for the vision.

Introduction

The Cambodian education system aims to develop human resources for a knowledge-based economy (MoEYS, 2014). This vision conforms to the Rectangular Strategy Phase III and the Industrial Development Policy 2015-2025, which intend to move Cambodia from a low-income country to an upper-middle income status by 2030 and a high-income nation by 2050 (RGC, 2013, 2015). To reach this end, human capital needs to be upgraded from the current labour-intensive, low-skilled workforce to an innovative, high-skilled one. But, to what extent is the education system ready to do this task? This policy brief presents the key findings of an upper-secondary education textbook review¹ (Chet et al., 2014), discusses links between the contents of the written curriculum of the textbooks, national curriculum policies and characteristics of the workforce for a knowledge-based economy, and provides pertinent policy implications.

Where is the Cambodian Economy Heading?

Cambodia has experienced tremendous economic growth over the past decades. The average annual economic growth rate marked 7.8 percent during 1997-2014, with the latest growth rate of 6.8 percent in 2017 (World Bank, 2018). Gross Domestic Product (GDP) per capita rose from USD 216 in 1992 to USD 1,375 in 2017 (ibid). The sources of economic growth have relied less on agriculture (23.38 percent of GDP in 2017) but more on industrial (30.88 percent) and services (39.67 percent) sectors (ibid). Specifically, agro-industry, tourism, construction and garments are the mainstay of growth. Recently, the economy has diversified its sources and climbed up the manufacturing value chains by increasing exports of electrical machinery, equipment and auto parts. This is the start of light industry (particularly assembly and electronic manufacturing) that requires semi-skilled labourers.

To become an upper-middle income country by 2030, the economy needs to keep growing at an annual rate of 7 percent and needs to move towards more technology-based manufacturing (RGC, 2015). This requires an innovative, skill-based

¹ The main methodology employed was chapter-by-chapter textbook review by subject expert lecturers. The review focused on knowledge, skills and attitudes of subject contents based on Bloom’s Taxonomy (Anderson and Krathwohl, 2001). The subjects covered comprised Math, Khmer, Physics, Chemistry and Biology at Grades 9 and 12.

workforce that is creative, productive and able to learn new technologies to catch up with the structural change in the economic system. The Cambodian economy has rendered a rising proportion of knowledge-intensive jobs that require creativity, leadership, problem-solving, languages and more complex technological skills (World Bank, 2018). Specifically, skills demanded by newly emerging jobs encompass: “Higher-order cognitive: oral communication, foreign language; Socio-behavioral: customer service, team work, taking initiative; Digital literacy: IT literacy, adapting to new equipment/procedures; and Some traditional skills: manual dexterity” (World Bank, p.49, 2018).

This trajectory is in line with the Asian experience that depicts that labour force of an upper-middle income economy that escape the “middle-income trap” possesses “higher-order” cognitive knowledge, skills and attitudes, which can be trained to gratify the growing needs of science and technologies required by the economy (Wilson, 2014; Wan and Morgan, 2017; Yoshino et al., 2018). To have this sort of human capital, education curriculum needs to build at least a foundation for active learners and adaptive workforce.

Does the Education Curriculum Match Up?

Cambodia has undergone five major reforms of general education curriculum in response to its educational development strategies and socio-economic development (MoEYS, 2015). The thrusts of the reform periods are 1980-1987, 1987-1996, 1996-2005, 2005-2009, and 2015-present. A critical junction of the curriculum revisions was in 1996 when the 1996-2005 curriculum prescribed a “student-centered” teaching and learning approach (MoEYS, 1996). This spurred re-writing of textbooks and teacher manuals to respond to the new pedagogy.

The student-centered approach emphasizes “pupils' activities”, students as “active participants” in independent learning processes individually or in groups in or outside the classroom, and teachers as “facilitators or catalysts” (MoEYS, p.18, 2001). It is intended to instigate students to “better understand their surrounding environment, apply methods of problem solving and enrich their spirit of innovations” (Nath, p.16, 1999). Students’ active engagement in learning activities and higher-order thinking has been signified in subsequent curriculum and educational policies. For instance, a 2007 Child-friendly School Policy strives for child-centered education that stresses students’ involvement and collaboration; problem-solving; and research, analysis, and critical thinking (MoEYS, 2007). A 2012 Policy and Guidelines for Core Textbook Development instruct that “textbooks should be written to promote pupils' higher-order thinking skills such as analysis, application, synthesis, and evaluation” (MoEYS, p.27, 2012). Overall, the general education curriculum aims to unleash students’ potential and train them to become “full” citizens. This is evident in the Policy for Curriculum Development 2005-2009, which aims “to develop fully the talents and capacities of all students in order that they become able people, with parallel and balanced intellectual, spiritual, mental and physical growth and development” (MoEYS, p.4, 2004). Likewise, the current Curriculum Framework of General Education and Technical Education envisions “to ensure all citizens develop their full potential... and progress with balanced physical appearance, knowledge, (and) behaviours...” for national development (MoEYS, p.2, 2015).

In other words, the national curriculum policies aim to produce active learners and adaptive workforce through inquiry-based learning. Branch and Oberg (p.1, 2004) define inquiry-based learning as “a process where students are involved in their learning, formulate questions, investigate widely and then build new understandings, meanings and knowledge”. This is in the exact line with the “student-centered” approach adopted by the education system. But, while instruction methods are integral, contents of written curriculum substantially orient students toward such learning. However, the textbook review (Chet et al., 2014) does not reveal features that render active, creative learners, which are conduits for “higher-order” cognitive knowledge, skills and attitudes. This is in contrast to the prescriptions of the national curriculum policies and the demand of a knowledge-based economy.

Inadequate and Fragmented Knowledge Demotivates Active and Meaningful Learning

Results of the textbook analysis show that contents of lessons are complicated, fragmented, and not well explained. This is compounded by the inconsistency in the levels of difficulty (that should be from basic to advanced). Further, the sequence of concepts often does not follow a logical constructive order. This would make students difficult to grasp the concepts and accumulate knowledge in an incremental and connected manner.

Most factual information is described very theoretically, not practically. Descriptions and explanations lack practical examples to illuminate and substantiate information or concepts. Of particular note is the disconnection between fields of science. Substance and methods of science lessons often are separated from one another, and are not integrated ‘as-experienced’. Many examples are not practical, not as would be experienced by students in daily life. Described experiments are basically at lab-level, which would make students hard to link them with natural and practical phenomena. Finally, the substance in each lesson is not sufficient at its respective grade. Compared with the same levels of textbooks of an advanced country like Singapore (MoES, 2006, 2008, 2013), the contents of lessons are quite inadequate in terms of breadth and depth. This paucity would impede students to build a strong foundation for thinking towards higher cognitive levels.

Memory-Based Contents Produce Lower-Order Thinking Skills

Substantial contents of lessons emphasize remembering, understanding and applying facts. Questions of “how” and “why” are sometimes observed, but learners are only required to memorize and answer from the written texts, not from their own thinking. This would discourage students to think “out-of-the-box”, vary versions, provide their own interpretations, assert their own experiences, and exert their own authority.

In many science lessons, the holistic and interwoven process of science is not shown and, as mentioned above, not experimented through practical work. Often, experiments are rigid procedural steps that demand memorization and exact implementation. Rarely, there is room for flexibility and variation in concepts and experimentation.

Prevalently, higher-order thinking skills are missing in exercises that mainly emphasize knowledge and comprehension. The core elements of Bloom’s Taxonomy- application (using information in new situations), analysis (drawing connections among ideas), evaluation (justifying a stand or decision), and creation (producing new or original work) (Anderson and Krathwohl, 2001)- are severely absent. Such memory-based contents and practices would stick students to lower-order thinking skills.

Lack of Rational Thinking and Practical Learning Discourages Positive Attitudes to Learning

How does rote and impractical learning pertain to students’ attitudes? First, memorization without understanding would produce passive learners who are discouraged from seeking new knowledge. Second, presenting facts without explanation or logical reasoning would discourage rational thinking among students. Third, disconnection with everyday life would create a perception that learning at school is irrelevant and insignificant. This would later discourage students from applying useful knowledge in real life activities. Finally, students who are not encouraged to question or think by themselves would lose interest in learning. A more crucial implication is that such students would have negative attitudes to learning, particularly in later stages of their life, and would not embrace life-long learning.

Conclusion and Policy Implications

The road to a knowledge-based, advanced economy requires a dramatic change in the education curriculum in order to produce an innovative, high-skilled workforce. This policy brief presents some pitfalls of the written curriculum of upper-secondary education, which is a foundation for such human capital. The textbooks, which are the core of the written curriculum, do not contain substantial inquiry-based contents that demonstrate active learning. Rather, the contents and activities of the textbooks dictate memorization and “lower-order” cognitive skills. Thus, the curriculum would not enable learners to pursue a higher level of education that requires independent research or inquiry. Learners of this curriculum may not become an innovative or adaptive workforce required to move Cambodia to an upper-middle income status by 2030. This is currently evident in skill shortages and gaps in the labour market (NEAa, 2018). Employers indicate soft skills (notably communication, problem-solving and team work skills) as the key shortfalls among employees (NEAb, 2018). Skill constraints may become worse once the economy shifts toward more knowledge-based jobs (World Bank, 2018).

The MoEYS has adopted a new curriculum framework that aims to produce “full” citizens for national development (MoEYS, 2015). Hence, a priority must be on an overhaul of the textbooks, which form a vital part of the written curriculum, in order to materialize this vision. While reform in content delivery (such as instruction methods and teacher education) is pivotal, the core task remains in the content revamp given the background of the education reforms. If a complete revision of the textbooks is not immediately feasible, extra material that is deemed relevant to and enforcing active learning should

be used. Various forms of extra material (such as textbooks and ICT material) should be explored to increase the inquiry-based learning elements that minimally exist in the present textbooks. Failure to do so will perpetuate the mismatch between the aspirations of the national curriculum policies and the demand of a knowledge-based economy that Cambodia wishes for.

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