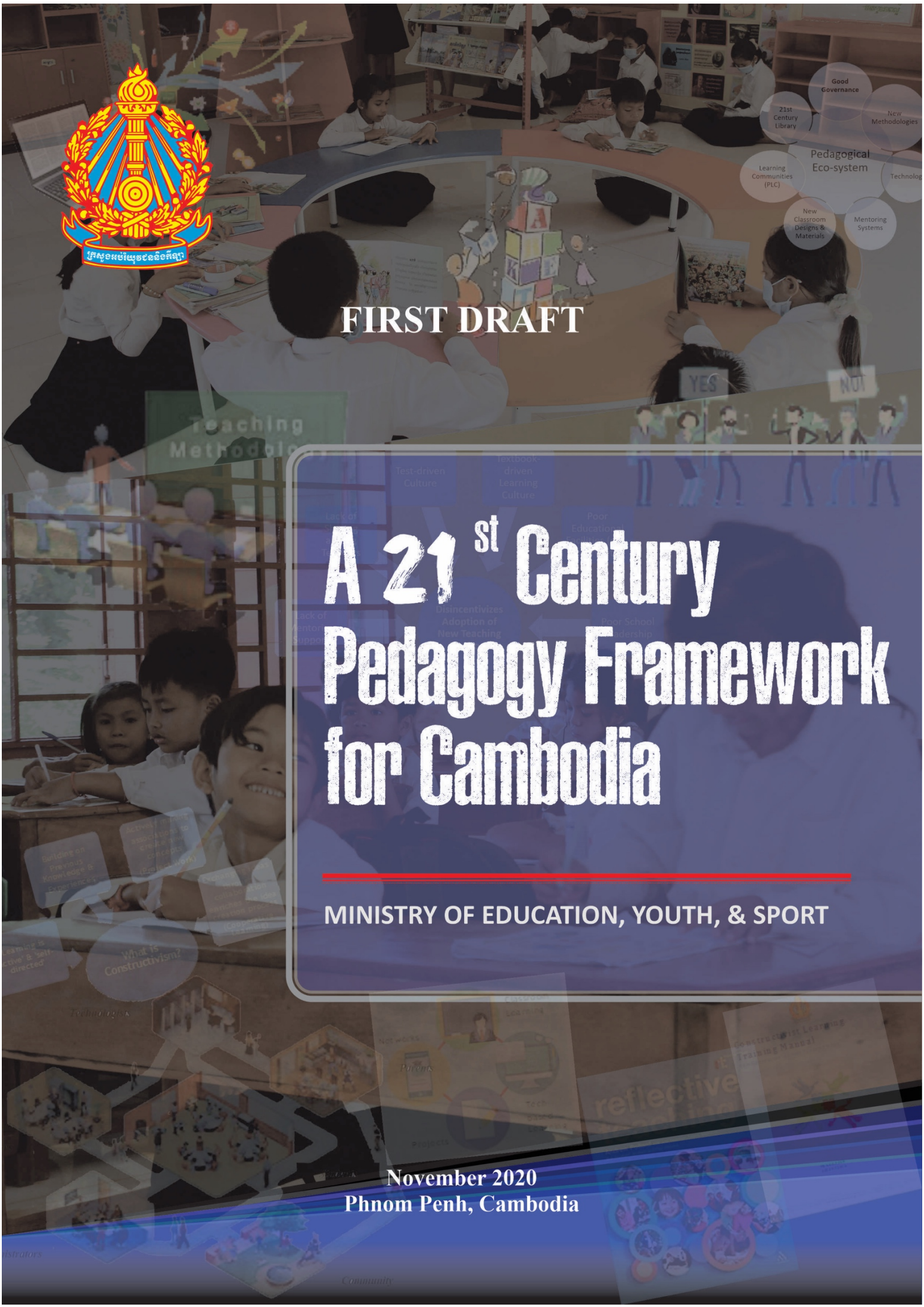

FIRST DRAFT

A 21st Century Pedagogy Framework for Cambodia

MINISTRY OF EDUCATION, YOUTH, & SPORT

November 2020
Phnom Penh, Cambodia

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Acknowledgement

The current document has been developed by MoEYS technical departments and training institutions in collaboration with Kampuchea Action to Promote Education. The goal of this collaboration was to better rationalize and systematize the various teaching methodologies that have increasingly wide circulation within Cambodia. The manual has gone through several iterations and has been improved through extensive commentary from Cambodian educators in several workshops and meetings as well as strong support from the leadership within MoEYS.

List of Abbreviations

CBL	Concept-based Learning
CFS	Child Friendly School
CL	Cooperative Learning
CMOE	Center for Management & Organizational Effectiveness
IBL	Inquiry-based Learning
ICT	Information and Communication Technology
MoEYS	Ministry of Education, Youth, & Sport
NGS	New Generation School
PBL	Problem-based Learning
PLC	Professional Learning Community
TTI	Teacher Training Institution

1. PURPOSE AND USES OF THIS DOCUMENT

1.1 Why A New Pedagogical Framework Is Timely

As the 21st Century unfolds, Cambodia has seen a large number of different pedagogical approaches and methodologies come onto the scene to help teachers improve the learning of their students. Often, however, these different methods of teaching compete with each other, even though in many cases, they also overlap with one another in terms of the teaching techniques that they employ. Misunderstandings among teachers that they should always use one method over another further confuses the issue. The purpose of the Ministry of Education, Youth, and Sport (MoEYS) in developing this document is to provide a flexible pedagogical framework for teachers to consider that both resolves some of the above issues and provides guidance in using different teaching methods in different contexts (as required by those contexts) without resorting to overly rigid and formulaic instructions. That is, this document seeks to provide 'freedom within a structure' to guide teachers in planning and executing their lessons effectively.

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In any education system, policy makers want to give teachers as much freedom as possible in how they teach, but without creating total chaos in the system, as well. On the other hand, too much structure can create a learning environment that is both mechanical and stifling, which often leads to a situation where teachers do not understand 'why' they are using certain prescribed methodologies. Thus, MoEYS hopes that the current document will provide a pedagogical framework that maps out a middle path between these two extremes.

More recently, MoEYS has sought to prioritize the integration of *concept-based learning (CBL)* into the redesign of the national curriculum and teaching methodologies that are promoted at Teacher Training Institutions (TTIs). Although the use of textbooks continues to be a major feature of Cambodia's education system, MoEYS would like teachers to supplement textbook learning by ensuring that content knowledge is placed into a real-world context so that it is more meaningful and practical. As MoEYS considers the development of new guidance for teachers about how they should approach their teaching, there is clearly a need for a highly flexible conceptual structure that both avoids

What Do We Mean by Concept-based Learning?

Concept-based Learning is driven by 'big ideas' rather than subject-specific content. By leading students to consider the context in which they will use their understanding, concept-based learning brings 'real world' meaning to content knowledge and skills.

formulaic pronouncements and promotes teachers' ability to mix elements of different methodologies in a way that best responds to the specific context in which they are teaching.

1.2 The Organization of This Document

In using this document, it is important to understand the progression of ideas leading up to the articulation of a flexible pedagogical framework that is built mainly on the principles underlying what is known as Constructivist Learning. Constructivism is proposed as the cornerstone for the new pedagogical framework because it provides a broad architecture of concepts well-suited to accommodating many of the teaching methods that are now commonly used in Cambodia (e.g., Inquiry-based Learning, Problem-based Learning, Cooperative Learning, etc.). But before one even gets to an examination of Constructivism, it is important to understand the evolutionary path of pedagogical change in Cambodia and how these changes have been influenced by changes in the economy in the 21st Century. An improved understanding of where pedagogical practice is coming from will help readers better understand where the new pedagogical framework is going and why.

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The next section in this document seeks to provide some standardization of common terms that are often used interchangeably, as this relates to the hierarchy of pedagogical systems in education. For example, some educators wrongly understand that Constructivism is a competing methodology on a par with such methodologies as Inquiry-based Learning (IBL), Problem-based Learning (PBL), and others when in fact we should consider Constructivism to be a much broader philosophical system or Approach that actually subsumes such Methodologies as IBL and PBL. Indeed, each of these methods promotes teaching techniques that are quite similar to one another (e.g., collaborative group work, student research, student projects, etc.). Thus, this section helps readers to better understand what is meant by certain terms such as *Approach, Methodology,* and *Techniques* and how they relate to one another in a hierarchical sense. These common understandings will help to prevent confusion and facilitate a clearer understanding of how Constructivism relates to commonly used methodologies in Cambodia.

Hierarchy of Pedagogical Systems

Approach
↓
Methodology
↓
Techniques

Finally, this document seeks to emphasize the importance of creating an enabling environment in a school that can increase the effectiveness of various teaching methodologies promoted by the Ministry. That is, no teaching methodology can be fully effective without supporting institutional structures and resources that should always be present to some degree in a school. The reinforcing role of these supporting elements in a school is called the *Pedagogical Eco-system.* The explanations provided in this section of the document build on the experience of *New Generation School (NGS)* reforms, which have demonstrated that changes in pedagogical practice can be made much more effective when supported by other accompanying changes in the school's environment and culture, such as modern libraries, science labs, ICT facilities, professional learning

communities (PLC), mentoring systems and other institutional structures. Thus, teaching methodology should not be considered in a vacuum, but rather in conjunction with other features of the educational environment.

It should also be noted that this document is not only intended to be a descriptive explanation of MoEYS' new Pedagogical Framework; rather, the Ministry also intends for this document to have a 'didactic' function, as well. Accordingly, each section of this document provides English and Khmer ***Reference Documents*** for further reading (or use in a TTI classroom as part of students' reading assignments) as well as a series of ***Discussion Questions*** that should help support the facilitation of workshops and classroom interactions at TTIs. There is not necessarily a right or wrong answer to the Discussion Questions provided. Rather the goal is for educators to discuss the issues together to gain some depth of understanding of the issues that are raised in each section.

Finally, the **Annex** of the document also includes some supplementary reference materials and ready-made PowerPoint presentations (see **Annexes 2, 3, and 4**) on the topics described above that may prove useful to workshop facilitators for making presentations during both pre- and in-service workshops.

2. WHY CAMBODIA NEEDS A NEW PEDAGOGICAL FRAMEWORK

2.1 The Evolution of Pedagogy in Cambodia and Key Issues of Relevance

The merit of the new Pedagogical Framework proposed in this document becomes more apparent when one considers the historical evolution of pedagogical trends in Cambodia over the last 25 years. This evolution has been characterized by a quest for standardized orthodoxy and simple to understand pedagogical formula. This quest for simple formula has sometimes taken the form of overly simplistic clichés such as, 'learning by doing,' and 'students do more while teachers do less.' While not incorrect, these oversimplifications of how teachers should teach often obscure the need for flexible responses to sometimes complex contexts in the classroom. There should not be one methodology over all others. The quest for an oversimplified guide to how one should teach has had some unfortunate consequences including the following:

- Educational practice has tended to become highly formulaic and prescriptive.
- Teachers only think about 'what' techniques they should use in teaching rather than 'why' they are using them.

The last of these consequences has been particularly problematic because when teachers do not know 'why' they are employing specific methods of teaching, their instruction becomes very mechanical, which very much lends itself to simply following the textbook; as noted earlier, MoEYS seeks to promote Concept-based Learning, which is antithetical to learning that is driven solely by what is in the textbook.

Box 1: Prescriptive & Reflective Teaching

- **Prescriptive Teaching** promotes an approach to learning where the steps in instruction are laid out for the teacher in a preconceived manner with little scope for deviation. Common examples of Prescriptive Teaching include standardized lesson plans, fixed steps in teaching, and textbook-based learning.
- **Reflective Teaching** promotes an approach to instruction where the teacher has considerable freedom to combine the techniques from many methodologies to best suit the context of his/her classroom. Through Reflective Teaching, teachers do a self-assessment of their teaching, wherein they examine their pedagogy, articulate reasons and strengths for their strategies, and identify areas for revision or improvement.

One of the biggest fault lines in pedagogical practice can be found in the tension between what is known as *Prescriptive* and *Reflective Teaching* (see Box 1). While neither of these modes of teaching is a methodology per se, they imply systemic strategies used by a school or educational authority to ensure that teaching is effective. For example, Prescriptive Teaching is predicated on the idea that most teachers have very low qualifications and need very precise instructions about 'what' and 'how' they should teach with little scope for deviation. Prescriptive Teaching has a long history in Cambodia particularly during the 1990s when teacher qualifications were generally much lower. The problem with Prescriptive Teaching is that it generally ignores the complexity of learning contexts and does not allow much flexibility for teachers to respond to the many variations that exist from classroom to classroom. As MoEYS seeks to prioritize Concept-based Learning and move teachers away from total reliance on textbook learning, it will

need to actively move away from Prescriptive Teaching strategies.

Reflective Teaching on the other hand encourages teachers to assess how effective their teaching has been in the past and how they might change it in the future to make it better. Reflective Teaching practices can be used with any teaching methodology to make them more effective. This is why we describe Reflective Teaching as a 'process' for approaching teaching rather than a specific methodology itself. Reflective Teaching is relevant to the new Pedagogical Framework described in this document because it encourages teachers to think about 'why' they should be using specific teaching techniques in the actual context of their classroom and how they can make these techniques more appropriate to the specific contexts that they might encounter. Reflective Teaching is also highly accommodative of Concept-based Learning because it asks teachers to reflect on the 'big picture' of what they want their students to learn beyond what might be in the textbook. It is for this reason that MoEYS supports the incorporation of Reflective Teaching into the new framework because it is highly responsive to strategic needs, as these relate to Concept-based Learning.

To be sure, Prescriptive and Reflective Teaching each have their own **advantages** and **disadvantages.** The choice of approach depends on how an educational system defines its priorities. These advantages and disadvantages are summarized in Table 2.1 below.

TABLE 2.1: Advantages & Disadvantages of Prescriptive and Reflexive Teaching

	Advantages	Disadvantages
Prescriptive Teaching	• Good for teaching the basics • Appropriate for teachers who have low levels of training • Teachers don't have to think much about their teaching • Easier for inspectors to monitor compliance.	• Not useful for teaching higher order thinking skills • Not appropriate for teachers with high ability • Teachers have little freedom to adapt their teaching to specific contexts • Teachers have little scope for professional growth
Reflective Teaching	• Good for teaching both lower and higher order thinking skills • Appropriate for teachers with high ability levels • Provides more scope for teachers' professional development	• More difficult to use with teachers who have lower ability levels • More difficult to apply and monitor • Reflection requires time to undertake

Although Prescriptive Teaching strategies may have been appropriate to support student learning 25 years ago, many educators in the MoEYS believe that it is now time to move forward into a new century where Reflective Teaching is much more appropriate for current priorities.

2.2 The Learning Needs of a New Century

The need for a new Pedagogical Framework is also intimately related to changes in the 21st Century economy. Indeed, the movement towards such new teaching methodologies as IBL and PBL is largely driven by the rapid pace of change in technology and the effect this has on how the economy works. Comprehending these changes will help educators understand why the adoption of new teaching methods and the re-organization of schools along lines that promotes the new Pedagogical Framework is so important.

Box 2: What is 21st Century Education?

A 21st Century education is one that responds to the economical, technological, and societal shifts that are happening at an ever-increasing pace. It's an education that sets children up to succeed in a world where more than half of the jobs they will have over their careers do not even exist yet.

Efforts to change the way that children learn in the new century are based on the assumption that educators understand how such changes will enable children to survive in the new economy. For example, a young adult in the 21st Century can expect to change careers between three to seven times during his or her life time. Unlike the 20th Century when one could expect to have a single career for one's entire lifetime, young people in today's world need to 'learn how to learn,' as they move from profession to profession during their life time (see Box 2). Indeed, many of the jobs of the future have not even been created yet.

The workplace of the past where compliance and conformity were essential.

For educators, internalizing an understanding of the needs of 21st Century society means abandoning older 20th Century conceptions about how the education system should educate children and youth as well as embracing 21st Century educational concepts. In many cases, these concepts are the exact opposite of the previous century. In the last century, schools were configured to be like 'learning factories' with a strong focus on compliance and the belief that most knowledge could be contained within a single textbook. In the past, knowledge was relatively static, which allowed textbooks to be the primary depository of knowledge for classroom learning. Today, knowledge changes much faster, making it difficult for textbooks to keep up; hence, the need for Concept-based Learning, which encourages teachers to move beyond the textbook.

In the world of the past, children were prepared to work in places of employment where uniformity and disciplined working conditions were essential. Because the conditions of knowledge and economic organization were quite stable during the last century and changed only slowly, the focus of schools on knowledge transfer, standardized classrooms, and static textbooks worked reasonably well. However, the digital revolution that has accelerated rapidly during the 21st Century has forever changed the way that both

knowledge and the economy are now evolving. As robots replace people, the focus of education has shifted towards creating a workforce that can do the things that machines cannot. This means creating a workforce that can think critically and adapt quickly to the ever-changing boundaries of knowledge and the professions.

As MoEYS encourages teachers to change their educational practice, it is important for all teachers to consider 'why' such changes are important. All too often, teachers attempt to mechanically adopt new methods of teaching without knowing 'why' they need to make such changes (other than the fact that the Ministry has requested teachers to do so). Thus, understanding the requirements of the 21st Century helps to give teachers a much better understanding of 'why' the Ministry wants them to move to more dynamic teaching methodologies that move children from rote learning, which may have been more than adequate to work in a 20th Century factory, to teaching methods that help children to be able to 'learn how to learn.' Table 2.2 below illustrates the contrast between the educational model used in the 20th Century and the model that is needed in the new century. When reading the characteristics of each parameter given, consider whether your school, district, or province has started to transition to a 21st Century educational configuration and to what degree. Consider what needs to happen in your locality to achieve the new configuration implied in the table provided.

TABLE 2.2: Differences in the Configuration of 20th Century & 21st Century Education

Parameter	20th Century Education	21st Century Education
• Concept of Learning	• Information Transfer • Passive Learning • Rote Learning	• Learning to Learn • Active Learning
• Curriculum	• Standardized • Textbook-driven	• Individualized • Concept-based • Research-driven • Learning moves beyond the text-book
• Assessment	• Test-driven	• Portfolio-driven
• Classroom Organization	• Standardized • Rigid Furniture Arrangements (e.g., Rows)	• Flexible Furniture Arrangements • Organized for Group Learning
• School Organization	• Hierarchical	• Organized around Networks and Relationships
• Educational Philosophy	• Compliance-driven • Conformity-driven • Uniformity is Key	• Learning is Viewed as Dynamic • Learning is Non-conformist • Creativity-friendly
• School Architecture	• Uniform • Standardized	• Dynamic • Unstandardized

Discussion Questions

Prescriptive & Reflective Teaching

1. Do you think that Prescriptive Teaching still has a role to play in Cambodia? Why or Why not?
2. Do you accept the argument made above that Prescriptive Teaching is not compatible with Concept-based Learning? Explain your answer.
3. The statement was made above that Reflective Teaching is not really a Methodology per se because it is more of a process for planning one's teaching that can be applied to any Methodology. Do you agree with this distinction between the 'process' of teaching and a 'method' of teaching? Why or why not?
4. What conditions (e.g., school leadership, mentors, etc.) do you think need to exist in a school for Reflective Teaching to really work?

21st Century Education

5. Why do you think that Concept-based Learning is not so compatible with textbook-driven learning? Do you agree with this proposition? Explain your answer.
6. If Cambodia did not adapt its educational system to the needs of 21st Century society, how do you think this would impact the Kingdom? Be sure to give specific examples.
7. Can you give concrete examples of each of the parameters for a 21st Century Education that are described in Table 2.2 above? To what extent is your locality actually working towards achieving these changes?

Suggested Reading

1. Serra, R., (2015) *What Is Reflective Teaching and Why Is It Important?* Richmond Share Blog.

https://www.richmondshare.com.br/what-is-reflective-teaching-and-why-is-it-important/

2. Theara, K. (2020) *Education: Pedagogy and Infrastructure (Chapter 4),* in Cambodia 2040: Culture & Society, Phnom Penh: Adenauer Foundation.

https://www.kas.de/documents/264850/9494366/Cambodia+2040+Culture+and+Society.pdf/2d86a754-1708-ca31-d78f-e70ac7b19aac?version=1.0&t=1593966925445

3. MoEYS (2019) *Transitions in Education: Moving from the 20th to the 21st* Century (PowerPoint Presentation).

4. *What is 21st Century Education* (Video)

https://www.youtube.com/watch?v=Ax5cNlutAys

5. *What is 21st Century Education: What Should 21st Century Learning Consist of?* (Video)

https://www.youtube.com/watch?v=ypSNpiW2qRs

3. DISTINGUISHING BETWEEN APPROACHES, METHODS, & TECHNIQUES

3.1 Explaining the Relationship between Approaches, Methods, and Techniques

Over the years, Cambodian educators have sought to systematize and standardize the way that they use different terminology and concepts. Discussions about the differences between Approaches, Methods, and Techniques have been particularly animated. Such discussions once again represent another quest for methodological orthodoxy, the dangers of which we have already discussed. Nevertheless, defining terms in a common way can be useful and may actually prevent disagreement; that is, if everyone can agree on a common hierarchy of educational systems.

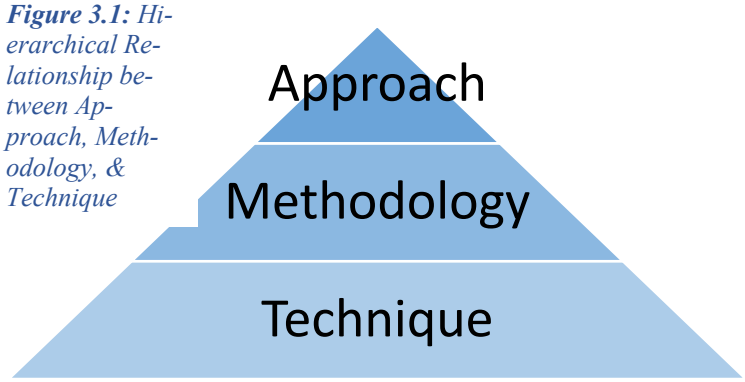
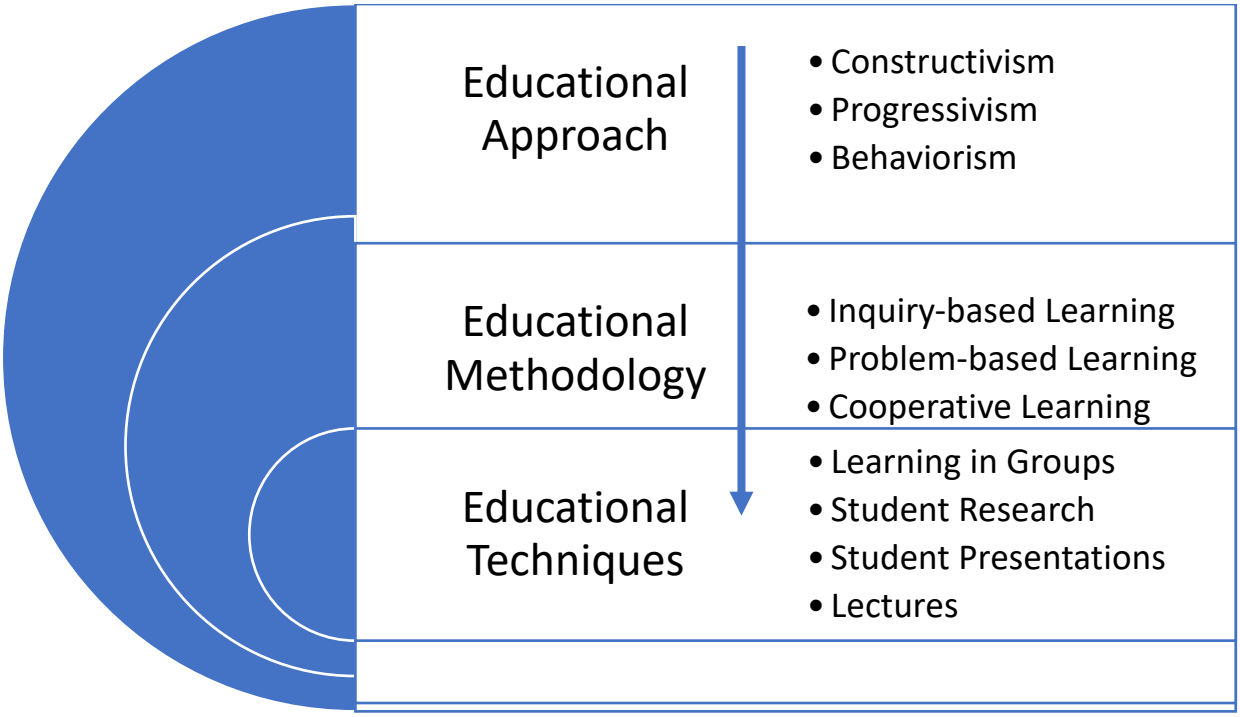


Figure 3.1: *Hierarchical Relationship between Approach, Methodology, & Technique*

In international parlance, educators usually refer to 'Approaches' as the highest level of a system of educational ideas. In the framework shown in Figure 3.1, we define an **Approach** as a *Philosophy of Teaching & Learning* (e.g., Constructivism, Progressivism, etc.). When used in this way, we say that a philosophical approach is comprised of abstract principles that guide the development of Methodologies (see **Annex 1** for a listing of Philosophical Approaches in Education). Within an Approach, there might be multiple **Methodologies** (e.g., IBL, PBL, etc.) and within a Methodology, there might be multiple **Techniques**.

Figure 3.2: *Examples of Educational Approaches, Methodologies, & Techniques in the New Hierarchy of Educational Systems*



Standardized definitions of the terms *Approach, Methodology,* and *Technique* are provided in Box 3. It is important to note that when moving from Approach to Technique, one moves from abstract principles to more concrete procedures, skills, and actions. In addition, any given Approach might be exemplified by several Methodologies, which provide different interpretations of the same Approach. For example, in Table 3.1 below, three different Methodologies are described, which each exemplify the Educational Approach called 'Constructivism.' Within each Methodology, there are multiple techniques cited that comprise the method, some of which may overlap. That is why 'student presentations' are commonly used as a technique for Project Method, Inquiry-based Learning, and Problem-based Learning.

Box 3: The Definition of an Educational Approach, Methodology, and Technique

Educational Approach refers to a philosophy of teaching and learning that is comprised of abstract principles that guide the development of specific methodologies.

Educational Methodology refers to the system of techniques, practices, and procedures that a teacher uses to teach. Methodologies are based on interpretations of specific philosophical approaches to teaching & learning.

Educational Techniques are the specific skills and actions that teachers employ (e.g., questioning, assigning student projects, organizing students into groups, etc.) as part of a broader methodology.

TABLE 3.1: Using A New Hierarchy of Systems to Explain the Relationship between Approaches, Methods, and Techniques in the Context of Constructivism

Approach (or Philosophy)	Methodological Exemplars	Techniques Associated with a Method
CONSTRUCTIVISM: ***Constructivism is 'an approach to learning that holds that people actively construct or make their own knowledge and that reality is determined by the experiences of the learner'***	**Project Method** requires children to solve a practical problem over a period of time by developing their own projects. The project may be suggested by the teacher but should be planned and executed by students themselves either individually or in groups.	• Project identification • Students work in groups or individually • Student research • Student presentation
	Inquiry-based Learning Method is a form of active learning that starts by posing questions, problems or scenarios. It contrasts with traditional education, which generally relies on the teacher presenting facts and their own knowledge about the subject.	• Student identification of questions they want answered • Student research • Student presentation • Student Reflection on processes that worked/did not work
	Problem-based Learning Method is a teaching method in which complex real-world problems are used as the vehicle to promote student learning of concepts and principles as opposed to direct presentation of facts and concepts.	• Step 1: Explore the issue and Identify the problem • Step 2: Students state what is known. • Step 3: Students define the issues • Step 4: Students research knowledge • Step 5: Investigate solutions • Step 6: Present and support the chosen solution. • Step 7: Students review their performance.

One should remember, however, that these categories and definitions are merely rough tools to help us understand how different ideas relate to each other. In real life, a teacher will rarely use one Approach or Methodology all of the time. Teachers are often expected to combine different elements of different Approaches and Methodologies depending on the context. Teachers frequently take specific actions to combine and/or modify an approach/methodology to address specific constraints in their classroom. When teachers do this, they are making a **Strategy** (see Box 4)**.**

Box 4: What Is an Educational Strategy?

An educational strategy refers to the specific actions that a teacher may plan to address specific features of the learning context. These features may include the physical learning environment, the characteristics of the students, and/or the nature of the curricular content that has to be taught.

Teachers may employ different strategies when teaching based on specific features of the physical learning context in which they are teaching (e.g., a classroom with many students, a learning environment where teaching materials are scarce, etc.), the types of students they are teaching (e.g., classrooms with students who are very diverse in their make-up), or the kind of curriculum that they have to teach (e.g., textbook-based content, electronic content, etc.). Teaching strategies are not educational systems themselves but rather are specific actions formulated by teachers that may form hybridized combinations of ideas from multiple approaches, methodologies, or techniques.

Discussion Questions

1. Does the hierarchy of educational philosophies and systems presented in this document help you to more logically organize all the different teaching methodologies that you have ever read about? Please explain your answer.
2. Several of the different teaching methods employed in Cambodia (e.g. IBL, PBL, etc.) seem to have had a competitive relationship with one another over the years. Does the educational hierarchy presented above help to better harmonize these competing approaches, especially if we can consider them to exemplify the same Educational Approach? Explain your answer.
3. How many Educational Approaches or Philosophies do you know of? Can you list them and make a table that indicates how they are alike and how they are different?
4. Can you think of any other Teaching Methodologies that exemplify Constructivism besides those already listed? If you can, try to expand the table provided above with additional methodologies and techniques that you can think of.

Suggested Reading

1. Namoco, S. (2017) Teaching Approaches, Methods, Techniques, and Strategies (YouTube Presentation).
https://www.youtube.com/watch?v=1xGmK_AJPNQ

2. Rhalmi, M. (2018) *Approach, Method, Procedure, and Technique,* in 'Reflections in New Teaching Horizons.'
https://www.myenglishpages.com/blog/approach-method-procedure-and-technique/

3. Bas, A., *The Seven Philosophies of Education: What to Teach, Why to Teach, and How to Teach.* Academia.edu
https://www.academia.edu/36818346/The_Seven_Philosophies_of_Education_Philosophy_Why_Teach_What_to_Teach_How_to_Teach

4. USING PEDAGOGICAL ECOSYSTEMS TO ENHANCE THE EFFECTIVENESS OF NEW TEACHING METHODS

4.1 What is a Learning Ecosystem

Box 5: What is an Ecosystem?

An ecosystem is a system of interconnected elements, formed by the interaction between a community of organisms and their environment.

Advocating for teachers to change their teaching practice and to adopt teaching methodologies more in line with MoEYS' preferred guidance (e.g., concept-based learning, problem-based learning, etc.) cannot happen in a vacuum. There are many factors in a school's environment that can either promote or discourage effective changes in teaching practice. This realization has given rise to the idea of comparing the learning environment in a school to what is known as a natural 'ecosystem' (see Boxes 5 and 6). In a natural ecosystem, there is a high interdependence between animals and plants and their physical environment. A dramatic change in any one of these will have an effect on everything else due to their degree of interconnectedness. For example, cutting down trees may cause erosion that pollutes streams and lakes. When these water sources become polluted, fish and other aquatic animals will die. This in turn reduces the amount of food available for land-based animals to eat, which reduces their population. This simple example demonstrates how a change in one element of the ecosystem will cause a chain reaction that affects all of the other elements.

Box 6: Comparing a School to an Ecosystem

If we believe that a school is an ecosystem, and act that way, then we shift our perspective. We realize that every element of a school affects the other parts. (Edutopia, 2016)

Using the natural ecosystem as a metaphor, educators now commonly talk about 'pedagogical ecosystems' that comprise many elements (e.g., parents, community, physical facilities, etc.; see Figure 4.1). Understanding how these elements interact helps planners to better understand how to amplify improvements in teaching practice in a school. For example, there are many factors in a school that can actively disincentivize efforts aimed at changing teachers' classroom practice, even after heavy investment in training workshops. Such factors may include poor school leadership, a test-driven culture, no mentoring support, a lack of Professional Learning Communities (and lack of sharing), etc. (see Figure 4.2). Table 4.2 below gives some explanation how disincentivizing factors in the pedagogical ecosystem can affect efforts aimed at helping teachers to adopt new methodologies implied by Concept-based Learning.

TABLE 4.1: Explaining the Interaction between Elements within a Pedagogical Ecosystem

Ecosystem Factor	How This Factor May Undermine Adoption of New Teaching Methods
• Poor School Leadership	School directors may focus on keeping everyone happy rather than 'pushing the envelope' to improve the school, ensure that teachers/students are using the library, etc.
• Test-driven Teaching Culture	Teachers focus heavily on 'teaching to the test', which creates a disincentive to focus on new teaching methods that emphasize higher order thinking.
• Textbook-driven Learning Culture	Teachers focus only on what is in the textbook rather than giving students the 'big picture' of how new knowledge might be useful to students' daily lives.
• Lack of Sharing Among Teachers	Teachers focusing on teaching privately may encourage teachers not to share techniques and useful documents with other teachers.
• Lack of Mentoring Support	Teachers have nowhere to turn to receive guidance on how to adapt new teaching methods to the specific requirements of their students and classrooms.

Figure 4.1: *A Pictorial Depiction of a Pedagogical Ecosystem in a Modern School*

The tendency of educational development efforts to focus heavily on investments in workshops about teaching methodology while placing less emphasis on creating an enabling environment to promote change may help explain why teaching practice has been so slow to change in Cambodia. Thus, new concepts about the school that encourage educators to look at changes in teaching practice as part of an interdependent ecosystem may help to ensure that Cambodia implements change in teaching practice more effectively.

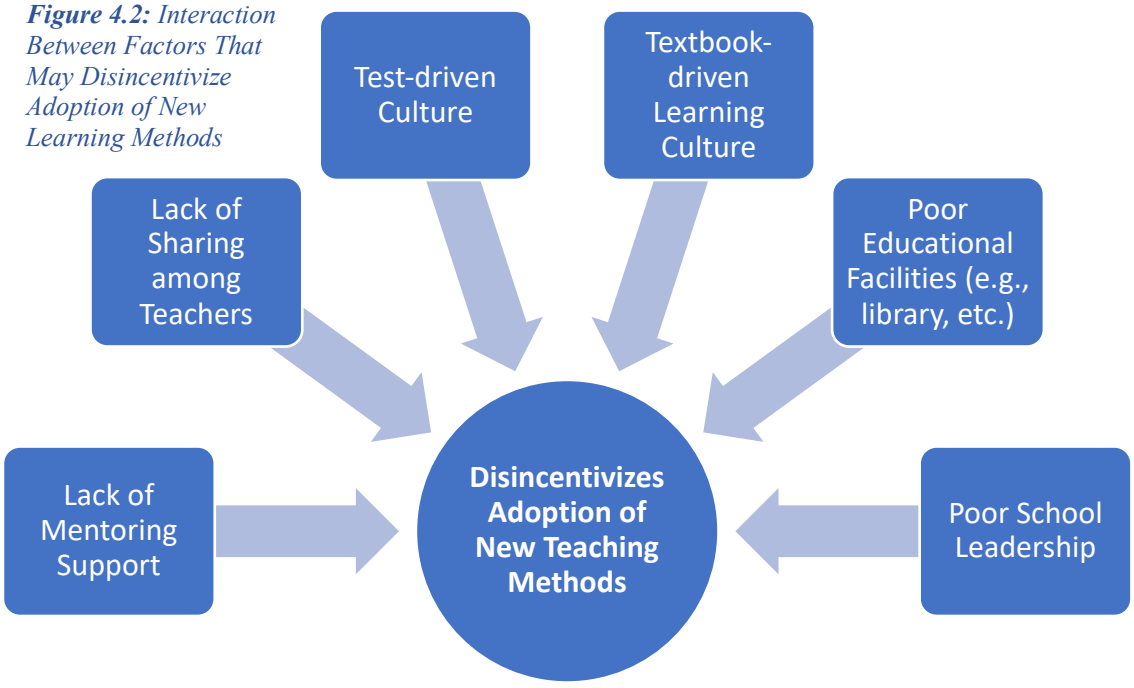


Figure 4.2: *Interaction Between Factors That May Disincentivize Adoption of New Learning Methods*

4.2 How Public Schools Can Learn from the Pedagogical Ecosystem in a New Generation School

Recent reforms in Cambodia's education system to create what are known as New Generation Schools provide a significant amount of experience about modifying the school's pedagogical ecosystem to amplify changes in teaching practice. These efforts started first and foremost with building good leadership among school administrators, which in turn result in active advocacy for teachers to better utilize school resources. This advocacy results in better use of the school library (for student research) and new facilities provided in redesigned classrooms and labs (see Figure 4.3). Managers also made the active use of technology an important part of how they managed the school including the requirement that teachers submit lesson plans electronically for review and discussion during one-on-one conferences with school-based mentors. These mentors were brought into schools on a permanent basis to assist school managers in supporting teachers to adopt new teaching methodologies, which generally focused on the higher order thinking skills. By placing a heavy focus on student research linked to the use of the 21st Century Libraries in each school, school leaders were able to move the culture of the school away from test- and textbook-driven learning.

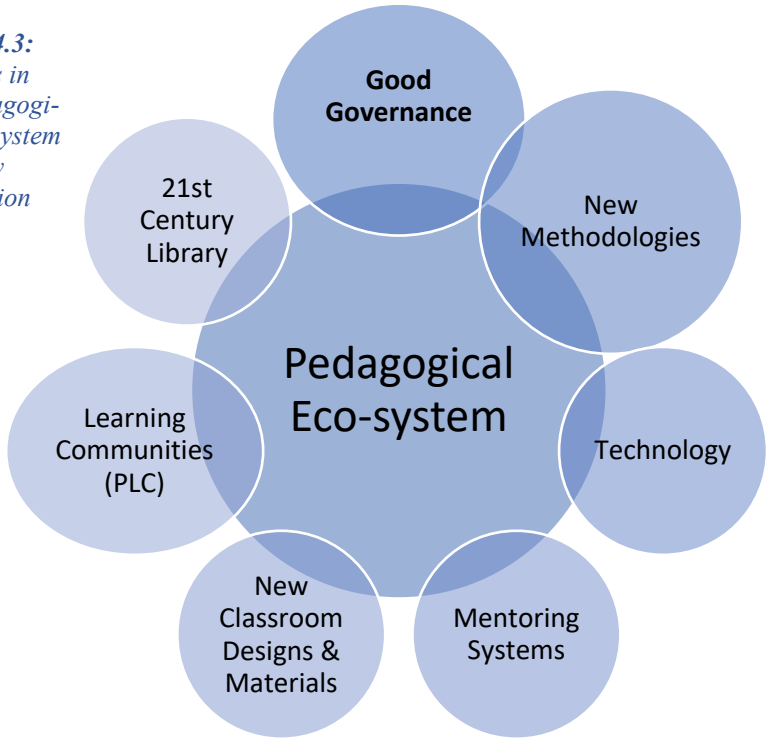


Figure 4.3: Changes in the Pedagogical Ecosystem at a New Generation School

Box 7: Research on How Teachers Change their Practice: The 70-20-10 Model

The 70-20-10 Model is a well-accepted formula used in the training profession. It is derived from US research in the '1980s on the key sources of learning of 200 successful managers.

The research found that:

- **70%** of learning came from hands-on experience where the worker met job-related challenges and received immediate feedback on their performance from line managers and mentors.
- **20%** of learning came from interaction and collaboration with other peers, coaches and mentors that gave encouragement and feedback.
- Just **10%** of professional development came from traditional training and other educational events.

When combined with formal training, coaching and practice reinforcement can produce remarkable results. According to the *Centre for Management & Organizational Effectiveness (CMOE),* **the combination of training plus coaching can lead to an 88% increase in productivity,** contrasted with 23% from training alone.

While it may not be possible to radically change the pedagogical ecosystems in normal public schools to the degree that New Generation Schools have done, there are still some compelling

lessons learned in NGS settings that may yet have relevance for many schools. For example, forming Professional Learning Communities by connecting teachers through social media would not require much investment. Similarly, requiring teachers to do project work and library research would help to move schools at least partly away from test-driven learning. Strong school leadership is essential for such change to occur.

Whatever a school might decide to do, it is important for school planners to remember that changes in teacher practice do not occur in a vacuum and that creating an enabling ecosystem will help to amplify those changes. In particular, school planners must remember that teacher workshops on their own are likely to have little impact on teaching practice without a strong enabling environment to push new practices forward. Adding features to the school ecosystem that include *professional sharing* and *mentoring support* are likely to have a dramatic effect on the adoption of new teaching methods among teachers, as extensive research has shown (see Box 7).

Discussion Questions

1. When thinking about your own school or a school that you have studied in, can you think how specific improvements in different aspects of the school could support the effectiveness of changes in teaching practice? Explain how can these improvements can impact on teaching and learning in the classroom.
2. Do you think that the comparison between a 'natural' ecosystem and the 'pedagogical' ecosystem described above is a valid metaphor? Why or why not?
3. New Generation Schools have been able to make a dramatic change in their pedagogical ecosystems because of the diverse range of investment to support multiple aspects of the school environment (e.g., leadership, mentoring, library upgrading, etc.). Do you think that the experience of a New Generation School has any relevance to a normal school in terms of upgrading the pedagogical ecosystem? Explain your answer.
4. Even if a normal school does not have all of the investment of a New Generation School, do you think there are still things that can be done to improve the overall pedagogical ecosystem there?
5. In your opinion, what elements of the pedagogical ecosystem described above have the most importance in terms of effecting change in the school? Explain your answer.

Suggested Reading

1. World Education (2019) *What is a Learning Ecosystem,* In EdTech Center@Worldeducation.
https://edtech.worlded.org/what-is-a-learning-ecosystem/

2. Elias, M.J. (2016) *What Kind of Ecosystem Is Your School?* In Edutopia
https://www.edutopia.org/blog/what-kind-ecosystem-your-school-maurice-elias

5. A HYBRIDIZED APPROACH TO TEACHING FOR CONCEPT-BASED LEARNING

5.1 The Merit of Developing a Hybridized Approach to Teaching

An important issue raised earlier in this framework document concerned the tendency among some educators to become very formulaic in their approach to how teachers should teach. This often manifests itself in the form of rigid adoption of one methodology or another without regard to the specifics of the setting or educational objectives being taught. This formulaic approach to teaching often results in inappropriate and ineffective instruction. Educational reformers in Cambodia have, therefore, sought to promote the use of a more hybridized strategy in the way that teachers teach. This requires that teachers consider the educational setting and objectives in a more measured way. Such considerations, if adopted by teachers, will lead to a stronger awareness of 'why' they are using a particular teaching method rather than mechanically adhering to a rigid prescription to use one particular methodology.

When teachers consider their educational objectives and setting carefully, it is more likely that they will need to strategically synthesize many different techniques from among many different methodologies. They may combine these techniques in unique

TABLE 5.1: An Example of How Teachers May Synthesize Methodologies to Fit a Specific Context

An Example of a Specific Setting	Techniques Associated with Specific Teaching Methodologies	Hybridized Application of a Teaching Method (Strategy)
A classroom in a rural setting has a very large class size of almost 50 students. These students have never encountered self-directed learning before and have limited research skills. The learning objective that the teacher wants to achieve is as follows: • Students can identify problems related to the environment in their community. • Students can propose solutions to the problems that they identify through research and discussion.	**COOPERATIVE LEARNING** • Students are organized into mixed ability groupings of 4 to 6. • Teachers organize a division of labor in each group so that all students are engaged on a specific task. • Teachers monitor group work. • Student groups make reports or presentations **INQUIRY-BASED LEARNING** • Students identify questions they want answered. • Student research • Student presentation • Students reflect on processes that worked/did not work **PROBLEM-BASED LEARNING** • Step 1: Explore the issue and Identify the problem • Step 2: Students state what is known. • Step 3: Students define the issues • Step 4: Students research knowledge • Step 5: Investigate solutions • Step 6: Present and support the chosen solution. • Step 7: Students review their performance.	• The teacher gives a list of possible issues in the environment (e.g., litter, recycling, air pollution, water pollution) for students to choose and consider whether this is a real problem in their environment. This technique still gives students control over problem identification but recognizes that they are not familiar with self-directed learning. • The teacher organizes 5 groups of 10 students but increases monitoring to ensure that all students are actively engaged in the task. • The teacher assigns specific tasks in each group (e.g., stating what is known, defining the issues, gathering research documents, etc.) • One or more students help to write up the findings and solutions. • One or more students present the findings/solutions.

ways that are guided by a clear understanding of 'why' they need to teach in a particular way. An example of how teachers may synthesize multiple methodologies to meet a specific situation is provided in Table 5.1. From this example, readers may note that sometimes the techniques adopted by a teacher may not be ideal (e.g., organizing students into very large groups) but that they nevertheless recognize the constraints that a teacher may face in a large classroom with many students. In such cases, teachers must find other ways to compensate for these less than ideal choices that they make (e.g., by increasing the amount of group monitoring that they undertake). This example demonstrates that it may not be possible or even advisable for a teacher to use a single methodology all of the time but rather to develop hybridized approaches that borrow, combine, and modify techniques from multiple methodologies.

5.2 What Is Constructivism?

Box 8: Constructivism Defined

Constructivism is 'an approach to learning that holds that people actively construct or make their own knowledge and that reality is determined by the experiences of the learner.' This experiential reality may be formed by pre-existing knowledge of the learner or research that he/she undertakes as part of a classroom assignment.

Concept-based Learning requires that Cambodia's education system moves away from 'passive learning' models in which students are thought of as 'receptacles' of knowledge to a new approach in which students are active 'constructors' of new knowledge. *Constructivist Learning Approaches* have been put forward as an ideal vehicle to achieve such change (see Box 8). As Cambodia enters the 21st Century, there is an increasing need for the education system to produce a work force that can think critically, solve problems, and work collaboratively. Mechanized teaching approaches of the past that focus heavily on rote learning are singularly ill-equipped to meet these needs. Constructivism has arisen as a response to such challenges.

5.3 How Constructivist Learning Can Help to Promote Concept-based Learning

Box 9: Key Characteristics of Concept-based Learning (CBL)

1. CBL is a philosophy of learning that not only has implications for 'teaching' but also for 'curriculum design.'
2. In CBL, learning occurs at the level of 'concepts' rather than simply 'facts.'
3. CBL encourages a multi-disciplinary approach to learning in which one lesson may cut across multiple subjects.
4. CBL focuses on the application of facts and concepts in the 'real' world rather than the memorization of facts only, as is true in a more traditional learning setting.
5. CBL requires students to see the synergies between facts and concepts. This creates an interplay between ideas so that students can see how ideas may change or evolve over time and in different settings.

Concept-based Learning provides a new theoretical framework for Cambodian educators to make education more relevant to students' everyday needs, particularly as these needs relate to the 21st Century economy. CBL is not just a teaching method but an overarching educational strategy that applies as much to curriculum design as it does to teaching. Some of the key precepts of CBL are summarized in Box 9. One of the key features of CBL is the desire to help students actively manipulate concepts so that they gain the power to think critically. This may entail the ability of students to cite examples of

principles that they learn, explain how principles can be used to solve problems that they are given or that they themselves identify, or even generate their own theories and hypotheses about why something happens. Doing projects, either individually or in groups, is often an excellent vehicle to help students achieve such aims.

Given the requirements of CBL, as outlined above, Cambodia requires an approach to teaching and learning that is eclectic in terms of its ability to accommodate multiple methodologies designed to promote inquiry and concept manipulation. In particular, this means conceiving of knowledge not as something that is static (e.g., facts) but as actively changing, depending on the context or problem to which it is applied. Constructivist Learning is an educational approach that is highly suited to meeting these requirements because it is eclectic in terms of its formulation and actively promotes framing knowledge in a way in which students are active constructors of knowledge, as noted above. Constructivism is a very broad theory of teaching and learning that takes in many pedagogical concepts that are of relevance to CBL. While the central feature of the approach is all about the ability of students to manipulate concepts, there are many related elements of the approach that include critical thinking, problem-solving, the need for collaborative learning, and intensive use of technology amongst many others. Constructivist learning also subsumes several other teaching methods with similar goals such as Problem-based learning, Discovery Learning, Inquiry-based approaches, and Cooperative Learning. Thus, Constructivism is a very eclectic theory of learning that takes in several other methods of teaching. Because of its eclectic nature and ability to accommodate multiple methodologies under one roof, Constructivism helps to neutralize the competitive nature of different methodologies all jockeying for dominance, which has been a historical feature of the evolution of pedagogy in Cambodia.

5.4 Constructivism and Technology

Although Constructivist Learning has been around for a long time, its relevance has greatly increased as the world enters the information age. Information technology has amplified the potential of Constructivist Learning Approaches to promote collaborative learning (e.g., through networking), to construct and synthesize new information (e.g., through PowerPoint presentations), and solve problems (e.g., through data processing programs that can find relationships, sort data, etc.). Thus, the use of technology can be a great tool to help students manipulate concepts, which is a central feature of both Concept-based Learning and Constructivism. Because the manipulation of concepts is one of the key features of

Constructivist Learning, it is highly suited to promoting critical thinking, one of the most important skills required for an information age workforce. There are, therefore, very close connections between ***Constructivist Learning, Technology,*** and the ***Needs of a 21st Century Workforce.***

Discussion Questions

1. What do you think are the advantages and disadvantages of a hybridized pedagogical approach to promote Concept-based Learning. Explain whether you think that the advantages outweigh the disadvantages or vice versa.
2. Concept-based Learning has been referred to in this section as a 'Strategy' to teaching and learning rather than an Approach or a Philosophy. Do you agree with this designation or do you think that CBL should be called its own Approach? Explain your answer.
3. Do you agree with the proposition that Constructivism is a broad enough theory that can accommodate IBL, PBL, and CL under one roof, which in turn facilitates hybridized teaching? Why or why not?
4. Can you think of additional examples of learning settings that may require a hybridized approach to teaching and learning? Use the structure provided in Table 5.1 to come up with your own examples.

Suggested Reading

1. McLeod, S., (2019) *Constructivism as a Theory for Teaching & Learning,* In Simple Psychology.
   https://www.simplypsychology.org/constructivism.html

2. KAPE (2016) Constructivist Training Manual, Phnom Penh: MoEYS.
   http://www.kapekh.org/files/report_file/166-en.pdf

3. Murphy, A., (2017) *A Quick Guide to Concept-based Learning and Curriculum,* In Atlas Next.
   https://www.onatlas.com/blog/concept-based-learning-curriculum

ANNEX 1: The Seven Philosophical Approaches of Education

PHILOSOPHICAL APPROACH	WHY TEACH	WHAT TO TEACH	HOW TO TEACH
1. Constructivism	• To develop intrinsically motivated and independent learners adequately equipped with learning skills for them to construct knowledge and make meaning of them.	• The students are taught how to learn. • They are taught learning processes and skills such as searching, critiquing and evaluating information.	• The teachers provide students with data or experiences that allow them to hypothesize, predict, manipulate objects, pose questions, research, investigate, imagine and invent. •
2. Essentialism	• This philosophy contends that teachers teach for learners to acquire basic knowledge, skills and values.	• The emphasis is on the academic content for students to learn the basic skills and fundamental r's – reading, 'riting, 'rithmetic and right conduct. • The teachers and administrators decide what is most important for the students to learn.	• Essentialist teachers emphasize the mastery of the subject matter. • They are expected to b e intellectual and moral models of their students. • They are seen as "fountain of knowledge" and as "paragon of virtue".
3. Progressivism	• Progressivist teachers teach to develop learners into becoming enlightened and intelligent citizens of a democratic society.	• The progressivists are identified with need-based and relevant curriculum. • The curriculum should respond to students' needs and that relates to students' personal lives and experiences.	• Progressivist teachers employ experiential methods.

PHILOSOPHICAL APPROACH	WHY TEACH	WHAT TO TEACH	HOW TO TEACH
4. Perennialism	• To develop the students' rational and moral powers.	• The perennialist curriculum is a universal one on that all human beings possess the same essential nature. • It is not a specialist curriculum but rather a general one.	• The perennialist classrooms are "centered around teachers". • The students do not allow the students' interests and experiences to substantially dictate what they teach.
5. Existentialism	• To help students understand and appreciate themselves as unique individuals who accept complete responsibility for their thoughts, feelings and actions. • To help students to define their own essence by exposing them to various paths they take in life.	• In an existentialist curriculum, students are given a wide variety way of options from which to choose. • Provide students with vicarious experiences that will help unleash their own creativity and self-expression.	• Existentialist methods focus on the individual. • They help students know themselves and their place in society.
6. Behaviorism	• Behaviorist schools are concerned with the modification and shaping of students' behavior by providing for a favorable environment.	• Behaviorist teachers teach students to respond favorably to various stimuli in the environment.	• Behaviorist teachers ought to arrange environmental conditions so that students can make the responses to stimuli. • Teachers ought to make the stimuli clear and interesting to capture and hold the learners' attention. • They ought to provide appropriate incentives to reinforce positive responses and weaken eliminate the negative ones.

PHILOSOPHICAL APPROACH	WHY TEACH	WHAT TO TEACH	HOW TO TEACH
7. Linguistic Philosophy	• To develop the communication skills of the learner. • To develop in the learner the skill to send messages clearly and receive messages correctly.	• Learner should be taught to communicate clearly – how to send clear, concise messages and how to receive and correctly understand messages sent. • Communication takes place in three (3) ways – verbal, non-verbal and paraverbal.	• Experiential is the most effective way to teach language and communication. • The teacher facilitates dialogue among learners and between his/her students.

Source:
Euphemia Abigael Bas

ANNEX 2:
Transitions in Education: Moving from the 20th to the 21st Century

11/25/20

TRANSITIONS IN EDUCATION: MOVING FROM THE 20TH TO 21ST CENTURY

New Generation School Reflection Meeting
Primary School Level

9 May 2019 – Kampong Cham

1

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1. **Education in the 20th Century**
2. **Education in the 21st Century**
3. **How NGS Seeks to Meet Expectations of the 21st Century**

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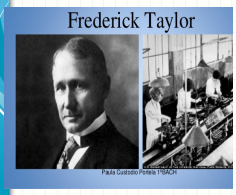
1. Education in the 20th Century



- 20th Century Education was greatly influenced by *Principles of Scientific Management*
- These were principles developed by a man named **Frederic Taylor**
- Taylor was the first 'Efficiency' Expert

3

Taylor revolutionized Industry by:

- Standardizing tasks
- Standardizing tools
- Standardizing schedules
- Standardizing Workplace organization

4

Taylorism in the 20th Century:

- https://www.youtube.com/watch?v=CCsOqWbK46o&frags=pl%2Cwn

5

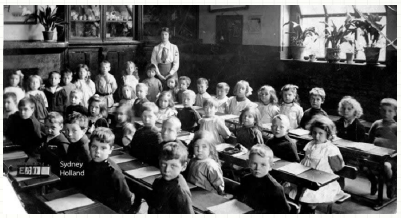
Education Factories . . .

- Soon, Educators thought that Taylorist Principles could be applied to schools
- This led to standardization of:
  - Curriculum
  - Schedules
  - Classrooms
  - Examinations
  - Etc.
- These changes would help prepare children to work in factories . . .

6

11/25/20

The Taylorist Classroom . . .



7

Compare the Taylorist Factory to the Taylorist Classroom . . .

Taylorist Factory

Taylorist Classroom

Welcome to the 20th Century!

8

Taylorism comes to Cambodia. . .

- Through French Colonialists, Taylorism was introduced into the Cambodian Education System . . . .
- Now we have **Education Factories** in Cambodia, too.

9

Taylorism in Cambodia . . .

- https://www.facebook.com/SORCHEANG.official/videos/896484580542768/UzpfSTEwMDAwMDY0Mzg4NzY1MzoyMDE1MDkyMjM4NTIyMjE5/

10

What has changed in 60 years?

11

The biggest change . . .

Women's Hair Styles 1969

Women's Hair Styles 2019

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11/25/20

A quick comparison . . .

Factor	1969 → 2019
Classroom Organization	Same
Classroom Furniture	Same
Teaching Methods	Same
Building Style	Same
Uniforms	Same
Women's Hair Styles	Changed

13

2. Education in the

- The needs of society have totally changed in comparison to the 20th Century

14

How is society changing?

- Knowledge is no longer stable as in the 20th Century
  - The idea of a fixed textbook is old-fashioned
- Machines are replacing people
- Jobs are disappearing
- New Jobs are arising
- Need to train people to do the things that machines can NOT do

15

What is 21st Century Education?

- https://www.youtube.com/watch?v=Ax5cNlutAys

16

Comparing 20th & 21st Century Education

Parameter	20th Century Education	21st Century Education
1. Concept of Learning	• Information Transfer • Passive Learning	• Learning to Learn • Active Learning
2. Curriculum	• Standardized • Textbook-driven	• Individualized • Research-driven
3. Assessment	• Test-driven	• Portfolio-driven
4. Classroom Organization	• Standardized • Rigid Rows	• Flexible • Organized for Group Learning
5. School Organization	• Hierarchical	• Networks and Relationships
6. Educational Philosophy	• Compliance • Conformity • Uniform	• Dynamic • Non-conformist • Creative
7. School Architecture	• Uniform • Standardized	• Dynamic • Unstandardized

17

A Humorous Look at Education in the 20th Century . . .

- https://www.youtube.com/watch?v=kb6UU8_R1YPA

Discussion

- *An important conclusion from this short clip is:*

  Teachers Don't Have to Think

- *Why is this a problem for 21st Century Education?*

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11/25/20

3. How NGS Seeks to Meet Needs of the 21st Century . . .

- Let's go back to our Comparison Table of Differences between 20th and 21st Century Education.
- In small groups, try to find some concrete examples of things we should be doing in NGS to promote 21st Century Education . . .

19

20

Give Concrete Examples . . .

Parameter	21st Century Education	Concrete Examples in NGS . . .
1. Concept of Learning	• Learning to Learn • Active Learning	• _____ • _____
2. Curriculum	• Individualized • Research-driven	• _____ • _____
3. Assessment	• Portfolio-driven	• _____
4. Classroom Organization	• Flexible • Organized for Group Learning	• _____ • _____
5. School Organization	• Networks and Relationships	• _____ • _____
6. Educational Philosophy	• Dynamic • Non-conformist • Creative	• _____ • _____ • _____
7. School Architecture	• Dynamic • Unstandardized	• _____

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Directions:

- Please complete the table in small groups and present to the main group . . .
- Give **specific examples** of things you are doing or will do in your classroom
- Discuss and React to the ideas presented

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ANNEX 3:
Pedagogical Strategies in New Generation Schools

11/25/20

MINISTRY OF EDUCATION, YOUTH, & SPORT

PEDAGOGICAL STRATEGIES IN NEW GENERATION SCHOOLS

Special Presentation at MoEYS

15 September 2020- Phnom Penh

1

Table of Contents

1. Pedagogical Eco-systems
2. Hybridized Methodologies
3. The Role of Technology in Improved Learning
4. Introduction of School-based Mentoring System and Possible Links with TTIs

2

1. Pedagogical Eco-systems

Illustration of a Learning Eco-system

- The Successful Improvements in the NGS Learning Environment are only partly due to the New Learning Methodologies that have been promoted
- The bigger story relates more to the Pedagogical Eco-system that has been created by NGS Reforms

3

The Methodology is like the seed. . .

- A seed can only grow into a healthy plant if the environment provides the needed support. . .
- While this seems obvious, training inputs often overlook the many disincentives that exist in most schools
- This may be why the heavy investment into teacher training has borne little fruit

4

What are some of the disincentives that exist in schools. . . .?

- The Education System is very **test-driven**, creating a disincentive to focus on new teaching methods that emphasize higher order thinking. . .
- **School Leadership** often focuses on keeping everyone happy rather than 'pushing the envelope'
- The Dominance of **Private Teaching** has a pernicious effect on learning by:
  - Reinforcing test-driven learning
  - Reinforcing textbook driven learning
  - Discouraging learning communities & cooperation

5

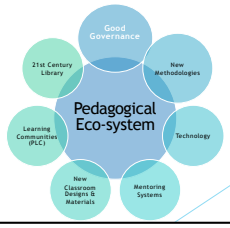
The Pedagogical Eco-system created in a New Generation School helps to neutralize each of these factors that disincentivize change in classroom practice . . . .

6

Elements of the Pedagogical Eco-System in a New Generation School . . .

The supportive environment created by this Pedagogical Eco-system is what drives improved learning.

Governance is key
- School accreditation
- Linking Incentives to Performance
- Increased Teaching Hours
- No Private Teaching



The New Methodologies supported by NGS are only one element behind the success of Student Learning.

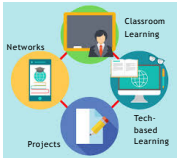
7

2. Hybridized Learning Methodologies

- Many of the teaching methods promoted by NGS are not new to MoEYS.
- MoEYS has been promoting these methods for many years:
  - Inquiry-based Learning (IBL)
  - Problem-based Learning (PBL)
  - Cooperative Learning (CL)
- . . . And more recently:
  - Blended Learning

8

What is perhaps new is the way that NGS has tried to 'hybridize' these methods . .



- One element of this hybridized approach focuses on **Methodological Content**, bringing the various methods (e.g., IBL, PBL, Project Work, etc.) together under one roof
- Another element of this hybrid model focuses on the **Process** of Implementing different teaching methods.

9

Hybridizing Methodological Content . . .

- Most of the Content in NGS Methodology derives from **Constructivism**
- This is a very 'eclectic' theory of Teaching & Learning that takes in many aspects of the methodologies promoted by MoEYS

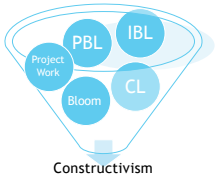
10

Defining Constructivism . . .

- Constructivism is the view that students collaboratively **construct** their knowledge from individual experiences and from thinking through these experiences (Reflection).
- Through this process, they can create new **knowledge products and projects.**

11

Constructivism subsumes IBL, PBL, CL, and many other Learning Approaches . . .



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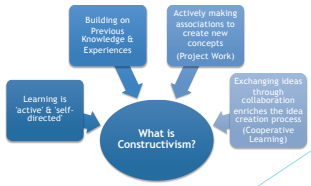
Key Elements in the Constructivist Approach . . . .



13

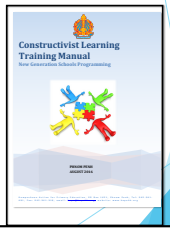
Constructivism and its link with Technology

- Although Constructivism was a concept first promulgated in **1974** by Ernst von Glaserfeld, its popularity has been amplified by the proliferation of new technologies and networking . . .
- New technologies make it easy for students to:
  - Do research
  - Network with each other and exchange ideas
  - Create knowledge products with PowerPoint, Photoshop, etc.
- **Investments in Technology** in New Generation Schools are a key strategy to modernize teaching and have greatly facilitated the adoption of Constructivist Learning Approaches

14

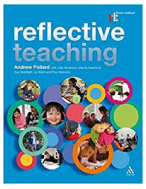
The New Generation School Central Office has documented Constructivist Learning Approaches

- The Constructivist Learning Manual is one of the key documents provided to all teachers during capacity-building workshops
- The document is also used as part of the syllabus of the New Generation Pedagogical Research Center (NGPRC)



15

The Process of Improving Classroom Practice: Reflective Teaching . . .



- The new Learning Methods that NGS Teachers learn should not remain static . . .
- While Constructivism is the ***Content*** of the NGS Approach, **Reflective Teaching** is the ***Process*** through which change occurs . . .

16

New Generation Schools have set up a structure that helps teachers to Reflect on their Practice . . .

- The Process of Change begins with a Career Path Planning event at the start of the school year
- This is followed by one-on-one Conferences with a Mentor
- In the past, the Mentor was a KAPE staff member
- School-based Mentors are now replacing KAPE staff

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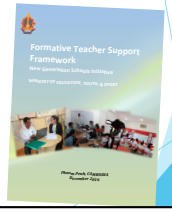
Helping teachers to automatically reflect on their practice should be an essential element of their capacity-building. . .

- The Teacher Supervisory System in New Generation Schools is designed to be **non-threatening** so that teachers bond with Mentors.
- The process is documented in the Formative Teacher Support Framework Manual



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Finally, NGS spends a great deal of time on training teachers on **Student Assessment**

- In the experience of NGS, many teachers do not understand well about the key Principles of Assessment
- Therefore, specialized training is provided on Student Assessment using the Manual Shown. The Content includes:
  - Purpose of Evaluation
  - Kinds of Evaluation (e.g., Formative, etc.)
  - What is Validity
  - Link between Educational Objectives & Assessment
  - Tables of Specification
  - Question Formats
  - Item Analysis

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3. The Role of Technology in Improved Learning

- New Technologies have helped to amplify the effectiveness of methodologies such as Constructivism.
- Teacher skills in using ICT to promote student learning are an essential part of NGS Programming

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There are multiple ways that NGS has harnessed technology to facilitate new teaching methods . . .

Networking: Facilitates Sharing & Communication in PLCs

Software Programs: Helps to reinforce understanding; creating knowledge products (e.g., PowerPoint)

Electronic Platforms: Facilitate distance learning, flipped classroom, working outside the classroom

Access to Search Engines: Facilitates library research

Mentoring Software: Increases the effectiveness of Mentors to reach many teachers in a way where teachers have control over the process

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Some examples of ICT in Education Curricular Topics at NGPRC . . .

1. E-safety and Digital Citizenship
2. Using ICT to Maximize Presentations for Learning
3. Using the Internet as an Educational Resource
4. Student Self-Learning & ICT
5. Using Technology to Support Professional Learning Communities
6. Using Technology to Support Problem and Inquiry-based Teaching & Learning
7. Computational Thinking as a pedagogical tool
8. Using Observic as a Mentoring Tool

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4. Introduction of School-based Mentoring Systems and Possible Links with TTI's

- The opening of the New Generation Pedagogical Research Center has played a major role in actualizing increased mentoring in New Generation Schools
- 25 mentors were posted to New Generation Schools and TTI's this year
- 32 mentors are planned for 2021

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The reasoning behind investing in Mentoring is based on the 70-20-10 Model . . .

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The 70-20-10 Model

This is a well accepted formula used in the training profession. It is derived from US research in the '80s on the key sources of learning of 200 successful managers.

The research found that:

70% of learning came from hands-on experience where the worker met job-related challenges and received immediate feedback on their performance from line managers and mentors.

20% of learning came from interaction and collaboration with other colleagues, peers, coaches and mentors that gave encouragement and feedback.

Just **10%** of professional development came from traditional training and other educational events.

When combined with formal training, coaching and practice reinforcement can produce remarkable results. According to the Centre for Management and Organizational Effectiveness, **the combination of training plus coaching can lead to an 88% increase in productivity**, contrasted with 23% from training alone.

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- The interesting thing about this research is that it attributes only 10% of the change in Teacher Practice to Workshops, . . .
- Yet, this is the frontline strategy of most donors to effect change in teacher practice.

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The NGPRC Mentor Training Curriculum is well-documented and may prove useful to TTI's . . .

- **Course Work (4 Streams)**
  - *Stream 1:* Teacher Ethics & Mentoring
  - *Stream 2:* English for Educational Research
  - *Stream 3:* ICT in Education
  - *Stream 4:* Systems & Principles of Pedagogy
- **Practicum**
- **Mini-thesis**

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Finding Ways for Mentors to Support TTI's

The NGPRC will be producing highly qualified Ministry personnel in the form of Mentors who can support improved training at TTI's. This support may include:

- **Improving the Practicum:** Based on their own Practicum at NGPRC, Mentors can help TTI's to improve the Practicum experience for prospective teachers.
- **ICT in Education:** With their advanced understanding of ICT in Education, they can be helpful in organizing courses in this area for the TTI's.
- **Tracking Teachers after Placement:** The NGPRC is currently tracking the effectiveness of mentors in their placements. Mentoring software may be useful in this regard.

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ANNEX 4:
Insights on Reforming the Teaching & Learning Process in Cambodia

11/25/20

MINISTRY OF EDUCATION, YOUTH, & SPORT

Insights on Reforming the Teaching & Learning Process In Cambodia

Prepared by: KAMPUCHEA ACTION TO PROMOTE EDUCATION

26 OCTOBER 2020

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Table of Contents

1. Key Issues in Cambodia's Pedagogical Evolution
2. Organization of Presentations
3. Some Key Conclusions to Look for

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1. Key Issues in Cambodia's Pedagogical Evolution

- The historical evolution of Pedagogy in Cambodia has been characterized by a quest for orthodoxy and simple to understand pedagogical formula . . .
- The quest for orthodoxy has had some unfortunate consequences:
  - Educators spend significant amounts of time arguing about definitions and classifying concepts according to rigid formula that have little relevance to the problems classroom teachers actually face. . .
  - Educational practice has become highly formulaic and prescriptive
  - Teachers only think about 'what' techniques they should use in teaching rather than 'why' they are using them

3

Prescriptive versus Reflective Teaching

- Educational Practice in Cambodia has long been characterized by a tension between **Prescriptive Teaching** and **Reflective Teaching**
  - **Prescriptive Teaching** promotes an approach to learning where the steps in instruction are laid out for the teacher with little scope for deviation.
  - **Reflective Teaching** promotes an approach where the teacher has considerable freedom to combine the techniques from many methodologies to best suit the context of his/her classroom.
- To be sure, each approach does have its own **advantages** and **disadvantages.** The choice of approach depends on how an educational system defines its priorities.

4

Advantages & Disadvantages of Prescriptive and Reflective Teaching

	Advantages	Disadvantages
Prescriptive Teaching	• Good for teaching the basics • Appropriate for teachers who have low levels of training • Teachers don't have to think much about their teaching • Easier for inspectors to monitor compliance.	• Not useful for teaching higher order thinking skills • Not appropriate for teachers with high ability • Teachers have little freedom to adapt their teaching to specific contexts • Teachers have little scope for professional growth
Reflective Teaching	• Good for teaching both lower and higher order thinking skills • Appropriate for teachers with high ability levels • Provides more scope for teachers' professional development	• More difficult to use with teachers who have lower ability levels • More difficult to apply and monitor • Reflection requires time to undertake

5

Cambodia's Choice . . .

- Some educators have argued that Prescriptive approaches were useful for Cambodia 20 years ago when most teachers were less qualified
- However. . . It is now time for Cambodia to move forward and start transitioning away from Prescriptive Approaches to more Reflective Teaching
- This is the only way that teachers will become more professional.

6

Ways of Thinking about Educational Approaches, Methods, & Techniques

- Over the years, Cambodian educators have also sought to systematize and standardize the way that they use different terminology and concepts.
- Discussions about the differences between **Approaches, Methods,** and **Techniques** have been particularly animated.
- Such discussions once again represent another quest for methodological orthodoxy, the dangers of which we have already discussed.
- The danger is that such discussions take a lot of time and often have little relevance to the actual problems that teachers confront in their classrooms. . . .

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Nevertheless, . . . It is true that defining terms in a common way can be useful . . .

- For example, . . .
- In international parlance, **Approaches** are generally seen at the top of the hierarchy of educational systems while **Methods** and **Techniques** come below. . .

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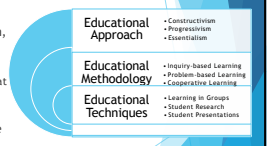
Here is how we might use this Hierarchy of Systems to better organize frequently used terms . . .

- In the framework shown to the right, we define an **Approach** as a *Philosophy of Teaching & Learning* (e.g., Constructivism, Progressivism, etc.)
  - A philosophical approach is comprised of abstract principles that guide the development of Methodologies . . .
- Within an Approach, there might be multiple **Methodologies** (e.g., IBL, PBL, etc.)
- And Within a Methodology, there might be multiple **Techniques**



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Approach (or Philosophy)	Methodological Principles	Techniques Associated with a Method
Constructivism: *Constructivism is 'an approach to learning that holds that people actively construct or make their own knowledge and that reality is determined by the experiences of the learner'*	Project Method	• Project identification • Students work in groups • Student research • Student presentation
	Inquiry-based Learning Method	• Student identification of questions they want answered • Student research • Student presentation • Student Reflection on processes that worked/did not work
	Problem-based Learning Method	• Step 1: Explore the issue and identify the problem • Step 2: Students state what is known. ... • Step 3: Students define the issues. ... • Step 4: Students research the knowledge. ... • Step 5: Investigate solutions. ... • Step 6: Present and support the chosen solution. ... • Step 7: Students review their performance.

Here is an example of using this Framework with Constructivism . . .

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But we should remember that categories are never as clear-cut as we would like them to be . .

- This is where **Strategies** come in. . .
- A teacher will rarely use one Approach or Methodology all of the time.
- Teachers are often expected to combine different elements of different Approaches and Methodologies depending on the context.
- Teachers often take specific actions to combine and/or modify an approach/methodology to address specific constraints in their classroom
- When teachers do this, they are making a **Strategy.**

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Exceptions!

- Participants should remember that the Framework presented above is only a rough conceptual tool to think about different terms and ideas. . .
- It should not be used as a rigid instrument to maintain ideological orthodoxy . .
- There are always going to be **exceptions,** where the Framework might not work . .

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2. The Organization of Today's Presentations

- Presentations during this workshop will focus on:
  - Transition from a 20th to 21st Century Economy and Its Effect on Education
  - Key Characteristics of **Constructivism** and Its Relationship to Inquiry and Problem-based Learning

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Education in the 21st Century

- The Movement towards such new Teaching Methodologies as IBL and PBL is largely driven by changes in the 21st Century Economy
- A planned presentation seeks to show the linkages between the 21st **Century Economy** and **Changes in Education.**
- Understanding these changes will help educators understand **why** the adoption of new teaching methods and the re-organization of schools is so important
- This presentation provides a good backdrop for later discussions.

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Understanding Constructivism

- Another planned session focuses on helping Educators understand what Constructivism is and why it is important
- Constructivism is not a Methodology but a Theory of Teaching & Learning that subsumes many teaching methodologies that are currently very popular . . .
- Constructivism is an Educational Theory well-suited to the 21st Century because of its focus on promoting critical thinking and problem solving in any context. . .

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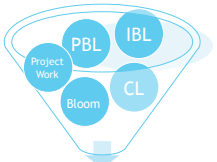
Constructivism subsumes IBL, PBL, CL, and many other Teaching Methodologies . . .



Constructivism

Embracing Constructivism helps to resolve the rivalry between all of these competing Methods because they all borrow from Constructivist Principles . . .

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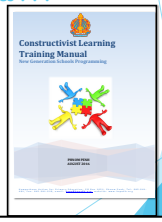
The Planned Session on Constructivism will cover the following topics . . .

1. Definitions and Key Concepts in Constructivism
2. Applications of Constructivist Learning in the Classroom
3. Creating the Institutional Context to Promote Constructivist Learning
4. Evaluating Students in a Constructivist Learning Context



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3. Some Key Conclusions to Look for . .

- When this Workshop is completed, Facilitators hope that participants will be able to see the bigger picture of how Pedagogy is and has evolved in the Kingdom. . .
- This includes more awareness about the following:
  - Avoiding a rigid **mind set** about the adoption of Methodologies such as IBL and PBL
  - Developing a habit of asking '**why**' we do things in a certain way and not just '**what**' we have to do . . .
  - Articulating a message to other educators about how Cambodian education must change to help the Kingdom survive in the new century.
  - Developing an ability to hybridize many different methodologies to meet specific contexts while maintaining the integrity of Constructivist principles.

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