

Current Issues and Prospects in Higher Education

The CAPEU Perspective

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The Consortium of Asia Pacific Education Universities (CAPEU)
2019

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Proverb



Source: Google Image "Burung Tempua"

Tis not without reason
that the weaver bird
builds its nest low

Meaning of Proverb

Everything happens for a reason. This proverb is commonly used both in oral and written forms.

Reason

The resilience of the weaver bird in building its unique nest is employed as a symbol for a university (UPSI) in founding its empire in education. The intertwining grass that fashions the nest symbolises the strategic networks built by UPSI, both nationally and internationally, in the pursuit to become the number one University of Education on world stage.

Like the weaver bird that builds its nest low, so is UPSI in making the first step towards its success in becoming the university with world recognition in education.

Translated by:
Dr. Lajiman Janoory
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PREFACE

The Consortium of Asia Pacific Education Universities (CAPEU) is a non-profit organization consisting of several leading higher educational institutions of Asia Pacific countries that is committed to promoting collaboration among its members in educational research, publication, and community development.

The roles of this consortium are as follows:

- ▶ Providing a platform for dialogues and networking among members.
- ▶ Creating opportunities to promote, engage, and integrate international education.
- ▶ Disseminating and hosting journal articles, books/e-books or any publication covering educational issues.
- ▶ Acting as a professional development center for program accreditation, professional attachment, faculty exchange, and joint-community services, and
- ▶ Showcasing best practices and niche areas of education of each member of CAPEU.

CAPEU acknowledges the support and contributions made by its members with regard to educational activities and projects carried out in the Asia-Pacific region. CAPEU is optimistic that strong networking among its members will help improve the quality of education in the Asia-Pacific region as well as create a healthy competition with developed countries in other continents. Such improvement entails strong commitment, dedication, and cooperation from all of us, and, therefore, let us work together as a successful global player.

Vision

“To be the center of world-class education, innovations, and enhancements”

Mission

“Committed to bringing in changes in teachers training, education, research, and community development”.



Objectives

- ▶ To establish a common network of cooperation among educational institutions in Asia-Pacific and beyond to facilitate discussions and exchange of relevant information encompassing a range of educational issues, such as learning problems, strategic actions, policy recommendations, and educational reforms.
- ▶ To advance educational research in teaching and services of the institutions of CAPEU's members by cultivating regional cooperation and liaising with other regional and international organizations that espouse similar aspirations.
- ▶ To disseminate information and share knowledge through cross-national and international collaborative research among educational universities.
- ▶ To enrich the professional human resources of educational universities in the region, including the exploration of innovations and the sharing of best practices of educational universities.
- ▶ To play the role of a leader for the educational universities of the region, including the educational universities of other continents.



ACKNOWLEDGEMENT

Special thanks to all CAPEU members who have inspired us to come out with this book based on input from the Q&A session during the first presentation in Langkawi Island, the staff of UPSI Press who have helped a great deal in formatting and type-setting this book, and all colleagues in UPSI who have given their support in preparing this book.

The content of Chapter 4 on Teacher Quality has been made possible by the funding of the NRGs research grant awarded by Malaysia's Ministry of Education. We wish to extend our gratitude to the students of the AT14 academic program taking the KPD3016 course, who were kind to share their projects. We also wish to express our thanks to Ms. Hashimah Ja'afar from the Department of Early Childhood, Faculty of Human Development, UPSI for sharing her practice-based learning projects.



ABOUT THE BOOK

This book is based on the compilation of ideas, practices, and visions that aims to inform readers, including CAPEU members, the one thing that matters the most: educational reform as viewed from the CAPEU's perspective. Think of it as a kind of CAPEU first step in sharing our ideas, practices, and visions in nurturing our nations and the next generations. Equally important, we are thrilled to share CAPEU's guidelines, ideas, practices, and visions with the readers of this book.

The information of this book is organized into seven sections as follows:

Section 1: Education Transformation

This section explores the differences and gaps between societies in providing equal opportunity for quality education. It highlights CAPEU's experiences in educational transformation and the benefits gained by transforming education that matches the future generation's needs and demands.

Section 2: Best Practices in Teaching, Learning, and Assessment

This section focuses on teaching, learning, and assessment methods, with the aim of sharing a

wider range of methods and practices. Various fun and engaging learning methods are included in this section, together with a number of inspirational works by educators.

Section 3: Students Quality

This section emphasizes on a framework of students' quality characteristics (i.e. multidisciplinary, holistic, entrepreneurial, lifelong, resilient, and digitally literate) to help develop graduates who will become job creators, technology inventors, innovators, and problem solvers.

Session 4: Teacher Quality

This section deals with issues and challenges in nurturing the attributes of quality teachers and in establishing a new vision of teachers' leadership management. In particular, this section highlights the findings of a five-year study by researchers from Universiti Pendidikan Sultan Idris (UPSI) Malaysia, carried out under Malaysia's Ministry of Education's Niche Research Grant Scheme (NRGS). This section highlights a set of quality teacher attributes and a building block of the 3E Teacher Education Model.



Section 5: Future Classroom

This section provides a synthesis of the growing discussions among educational technologists around the globe. Primarily, it focuses on the implementation of the solution for the future classroom in educational institutions. The pertinent points discussed in this section include issues and challenges in technology transfer, coordinating mechanisms or governing structure, teaching and learning, and facilitating strategies for the future classroom. It needs to be emphasized that the future classroom involves not only the application of new technologies but also novel methods of teaching and learning, which are an essential requisite in today's competitive environment and humanistic education.

Section 6: Equal Opportunity in Education

This section highlights the 2015's Sustainable Development Goals (SDGs), which emphasizes the needs for inclusive and equitable quality education and lifelong learning opportunities for everyone. In particular, the discussion of this section delves into the challenges and strategies in providing equity and equal opportunity for education for all children and adults.

Section 7: Research in Education

This section highlights the importance of research, development, and innovation in education. It describes the idea and motivation to facilitate the development of an educational research ecosystem among CAPEU members. It also highlights the strategies for determining and qualifying the relationships between the improvement of teaching practices and the optimal solutions to educational problems.

The discussion culminates in a way forward to enhance the teaching and learning process based on the outcomes of numerous discussion sessions among the CAPEU members. The main takeaway of this book is that it highlights our readiness to transform our educational systems (i.e. policies, values, practices, and processes) by capitalizing on emerging educational technology to cater to the needs of a new generation of students, teachers, and school administrators.



WORD OF WISDOM

“

Together we envision
the Universities
of tomorrow

”

PROF. DATO' DR. MOHAMMAD SHATAR SABRAN
President



“

We (CAPEU) open the
door, but you (students)
must enter by yourselves

”

PROF. DR. ASEP KADAROHMAN
Vice President



EDUCATION TRANSFORMATION

01

Photo by : www.freepik.com



INTRODUCTION

The Meaning of Educational Transformation:

Changes in the way educational processes and deliveries are being carried out, methods and strategies used, technologies, and materials introduced in the process of teaching and learning, and, most importantly, changes in the output of the whole process, – the students.

Definition by Ken Robinson (2015):

The importance of developing of students' critical knowledge that allows each student to direct his or her own life through authentic student learning, intervention, and empowerment.

Definition by David Hopkins (2012):

Transformation as personalized learning in which each student will be able to develop his or her own personal strengths within a stimulating, engaging learning environment.

Definition by Schemer (2014):

Theory U: From an open will to open mind, from suspension (of the old) to embodiment (of the new) and from letting go to letting come.



CAPEU

PERSPECTIVE



- a**  Facilitating discussions on how to overcome differences and gaps between societies by providing equal opportunity for quality education.
- b**  Finding ways to engage stakeholders, notably students, teachers, and parents, in discourses on how best schools could provide intellectual and emotional mentoring based on limited resources, funds, and expertise.
- c**  Encouraging the use of best practices of more successful nations while maintaining the needs, aspirations, and spirit of the members of CAPEU.



OBJECTIVES

a

Empowering students through education to help them fulfill their needs and face challenges in the future.

b

Enabling students to learn in an environment that is holistic and borderless.

c

Stimulating creativity that helps students to harness their innate potentials or talents.

d

Allowing students to set their objectives in learning and make their dreams come true.

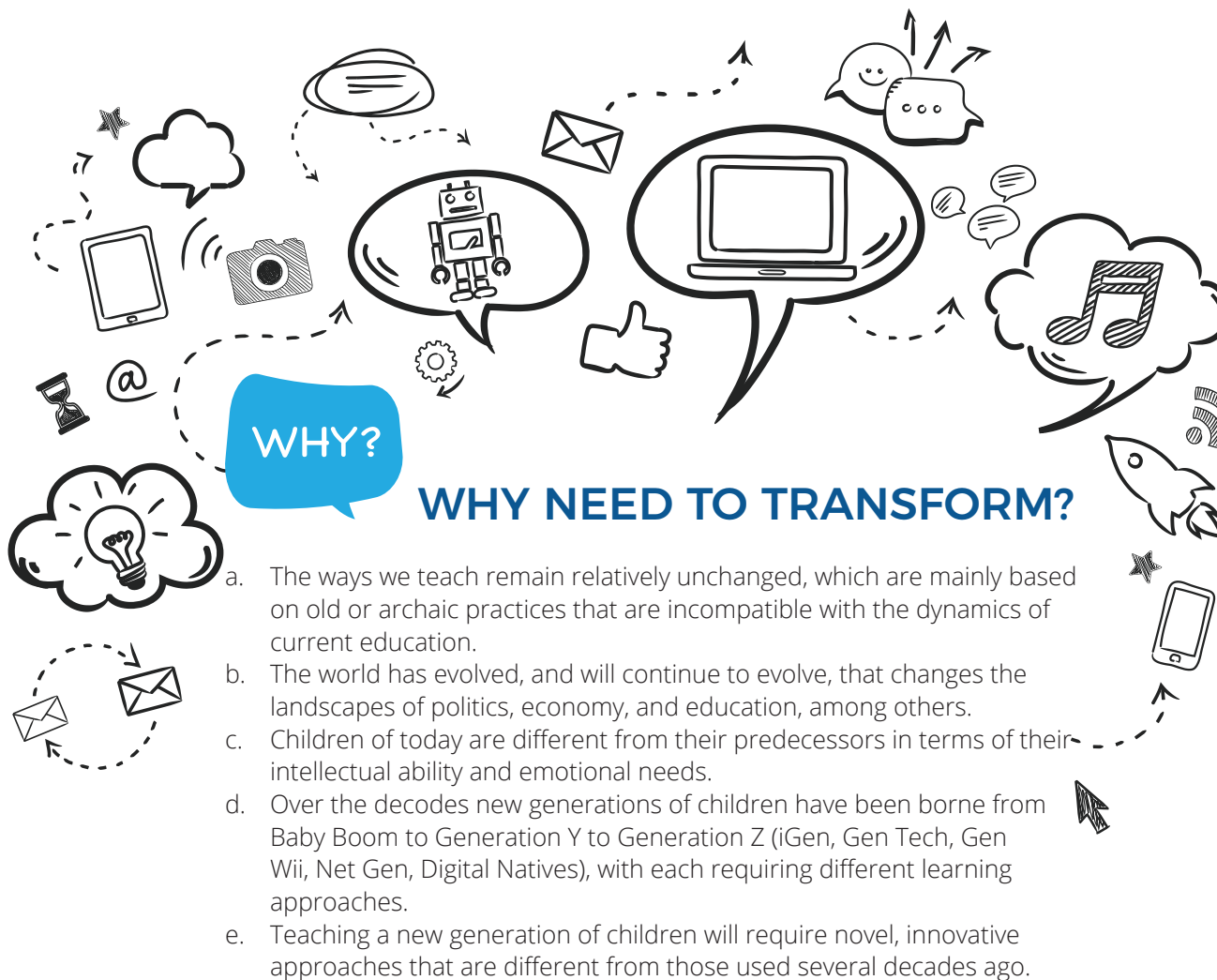
e

Accommodating and embracing differences among students and facilitating the process of self-development.

f

Enabling students to learn and re-learn.





WHAT NEED TO BE CHANGED?

- From textbook information to digital knowledge.
- From lab-based research to Internet-based research.
- From classroom presentation to real-life presentation.
- From teacher-student interaction to student-world interaction.
- From rigid-access contents to open-access contents.
- From real laboratories to virtual laboratories.
- From face-to-face learning to remote and distance learning.
- From single-discipline programs to multiple-discipline programs.

WHAT?

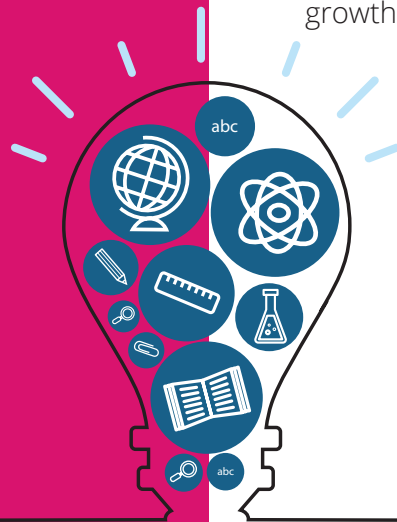


EDUCATION TRANSFORMATION

- a. Teaching, Learning, Assessment, and Supervision (TLAS)
- b. Quality Students
- c. Quality Teachers
- d. Future Classroom
- e. Equality in Education
- f. Research in Education

TRANSFORMATION EDUCATION MODEL

- a. Return to less restrictive environments.
- b. Less needs for physical crisis intervention.
- c. Increased ability to manage difficult children.
- d. Improved academic proficiency.
- e. Less time that focuses on crisis management.
- f. Decreased numbers of child-care workers and foster parents, and lower teacher turnover rates.
- g. Reduced damage and repair costs.
- h. Increased occupancy rates.
- i. Increased revenue and organizational growth.



CAPEU'S EXPERIENCES: CURRENT SCENARIOS



Malaysia

- Transformation to improve secondary and tertiary education through a comprehensive study on both levels of education beginning in 2010.
- The Ministry of Education of Malaysia introduced two important documents as follows:
 - National Education Blueprint 2013-2025
 - Higher Education Blueprint 2016-2025
- Both documents were published as a testimony of the commitment of the Malaysian government to transform Malaysia's education system at the secondary and tertiary levels.
- The main aim of the transformation to provide a world-class, holistic education to Malaysian students by harnessing their potentials that lead to holistically developed individuals without sacrificing national values and identities.



Indonesia

- Transformation education is defined as a planned effort to establish a conducive learning environment in which students can actively engage to develop and nurture their potentials, beliefs, spirituality, consciousness, personality, intelligence, behaviors, and creativity.
- The transformation was carried out in response to the rapid growth of Indonesian institutions of higher learning after gaining its independence.
- The transformation helped improve the teaching and learning practices through better and modern facilities, engaging and efficacious teaching by well-trained and highly skilled teachers (enabling students to learn more enthusiastically), and strong support from parents and local communities.
- The transformation helped strengthen school management and accountability (e.g., by bolstering parental commitment), and enhance the teaching and learning process, all of which had contributed to improved student learning.





Singapore

- Education in Singapore is managed by the Ministry of Education (MOE) of Singapore, which controls the development and administration of state schools that receive public funding. Also, this ministry has an advisory and supervisory role in monitoring private schools.
- Singapore's educational system has been described as "world-leading", and, in 2010, was selected as an example to be emulated by other nations in the region.
- Based on OECD's Program for International Student Assessment (PISA), an influential worldwide study on educational systems, Singapore has the highest number of top achieving students in international education and achieved top global rankings and performances.



Philippines

- Education in the Philippines is provided by public and private schools, colleges, universities, and technical and vocational institutions.
- Funding for public education comes from the federal government.
- The main goal of education is to provide learning opportunities to every school child in developing basic competency and in achieving functional literacy.
- In addition, education is provided to ensure all Filipinos will be able to fulfill their basic learning needs.





Thailand

- Education in Thailand is provided mainly by the Thai government through the Ministry of Education from the pre-school level to senior high-school level.
- Free basic education for 15 years is guaranteed by the Thai constitution.
- Public schools are administered by the Thai government.
- The private educational sector includes schools run by corporations, and fee-paying non-profit schools are often run by charitable organizations.
- Thailand Education Reform 1995 was launched to enhance the quality of education from 1996 to 2007, in which educational excellence was to be achieved in the 2007.
- The goal of the educational reform was to help transform Thai people into knowledgeable citizens who would be able to achieve a better quality of life by harnessing their potentials and to transform Thailand into a developed nation that can co-exist with other nations peacefully and harmoniously.



Vietnam

- Improving the overall quality of primary and secondary education.
- Upgrading the tertiary education by improving primary and secondary education.
- Replacing teaching methods and pedagogical approaches that were ineffective in stimulating creativity, enhancing independent thinking, and promoting self-confidence among students.
- Enabling employers to be involved in training graduates to help the latter acquaint with their jobs.
- Enhancing the quality of tertiary education by diversifying the academic programs offered by individual faculties of universities.





Brunei

- Introducing changes in the school curriculum that focused on the needs nation's, especially in producing a knowledgeable workforce that has the capabilities and skills in critical areas, such as science and technology.
- Inculcating the awareness of the importance of science and mathematics education by making science a compulsory subject at the primary and secondary levels.
- Introducing new subjects, such as Computer Studies and Design and Technology, at the secondary level of education.
- Emphasizing Information and Communication Technology (ICT) through the teaching and learning of ICT across the curriculum.



Cambodia

- Improving the quality of teaching and learning to respond to global challenges and facilitating the implementation of the Education Sustainable Development (ESD).
- Entailing IQA to make ESD as one of the components of quality evaluation of universities and higher institutions in Cambodia to ensure ESD would be properly implemented for effective teaching and learning.
- As clearly stated in the teaching and learning of Standard 6, indicators related to ESD are as follows:
 - Education for Sustainable Development (ESD) is incorporated into the curriculum, syllabus, course outlines, and lesson plans.
 - Project-based learning is applied to enhance the quality of education and to promote ESD within institutions.
 - ESD activities are promoted on the campus to ensure effective teaching and learning.



SUMMARY

Transformation education is a process of developing an intentional, aligned, and integrated culture that strengthens the beliefs, values, and living skills of young people. In essence, transformation education is an organizational philosophy as it advocates a new way of thinking of how education should be offered to young people. Educational transformation is also an operational methodology as it provides leaders with concrete, practical tools for identifying, creating, and maintaining a transformational culture. In fact, transformation education is different from other types of transformations because it concentrates on transforming how professionals think and act toward young people rather than “fixing” their behaviors. In this regard, transformation education should change an organization’s systems, staff, environments, and curriculum to provide a rich, effective milieu for educating the young generation in Asia.





BEST PRACTICES IN TEACHING, LEARNING & ASSESSMENT

02



INTRODUCTION

This section introduces a strategy to make learning fun and engaging, highlights a fun and engaging teaching and learning model called Sukhagogy, and provides several samples of students’ assignments and work based on such a model. In addition, this section discusses other

strategies to make learning fun and engaging. Elements of Education 4.0, such as integrated learning and assessment, and the author’s observation of students’ participation and engagement are also discussed.

ISSUES

a	Participation rates were below the target rate of 100% at the primary and secondary levels.	d	Performance gaps between genders and school categories, with girls outperforming boys and urban-school students outperforming rural-school students.
b	School dropouts occurred during transitions between grades, with the highest dropout taking place during the transition from the primary level to the secondary level.	e	Current and future challenges involving the changing concepts of teaching and learning, including students as co-creators of knowledge, the ability of students to learn anywhere, anytime with any teachers, the use of technology in teaching, learning and assessment in the Industrial Revolution 4.0 (IR 4.0) era and the widening gaps to quality education between urban and rural schools due to different accessibility to technology and internet.
c	Studies of dropouts revealed that many such children found schooling to be boring.		

One of the proposed solutions is to make schools stay relevant to students by providing them with fun and engaging learning experiences.



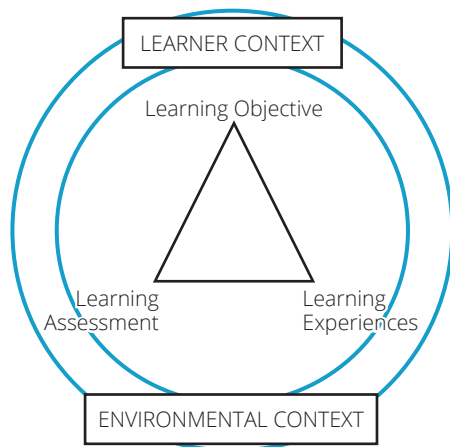
SUKHAGOGY – A FUN LEARNING MODEL

Admittedly, most teaching and learning models do not take relevant contexts into account. In contrast, the Sukhagogy Fun Learning Model consciously and deliberately focuses on a particular learner's context and environmental context to make learning fun and engaging to learners. Essentially, the model is based on a modified version of Tyler's (the triangle) model that borrows some ideas from the Calamlam

Vaulted Mentoring Model, in which cooperating teachers have to adjust their mentoring mode to suit the student teacher's mode. By considering a learning context, this model promotes fun and engaging learning. Moreover, various learning methods and strategies appropriate for the context can also be used. Furthermore, such a model promotes the notion of integrated learning assessment.



About the Sukhagogy Fun Learning Model:



- The Triangle focuses on three core elements in teaching and learning, namely learning objectives, learning experiences, and learning assessment.

- Learning objectives, experiences, and assessment can be adjusted to suit learners' context (such as student's readiness, ability or learning preferences), local cultures, and available resources.
- There are three purposes of assessment in Sukhagogy Fun Learning Model as follows:
 - (a) the assessment of learning,
 - (b) the assessment for "learning and assessment as learning", and
 - (c) multidimensional and continuous assessments.

Consider learners' context:

- ▶ students' background
- ▶ students' ability
- ▶ pre-requisite knowledge and skills
- ▶ availability of resources



VARIOUS FUN AND ENGAGING LEARNING METHODS

Flipped Classroom

Essentially, the flipped classroom involves students preparing the lesson of a given topic before the actual class takes place to help create a dynamic learning environment. Students explore their natural curiosity and prepare a topic at home such that the class scheduled the following day can be devoted to students answering any questions that they have about the topic.

Project-based Learning

In recent years, project-based learning has been widely used for the teaching and learning of many school subjects, such as performing arts, physical education, and sports. Students gain knowledge and skills by working on a project to solve a problem for an extended duration by investigating and solving an authentic, engaging, and complex question, problem, or challenge.

Design Thinking (Case-Based Method)

Resolving real-life cases through group analysis, brainstorming, innovation, and creative ideas.

Self-Learning

One of the techniques for facilitating self-learning is the use of mind maps. Each student is given the freedom to develop and expand his or her ideas by drawing a mind map consisting of facts or notions or ideas and collaborate to improve each other's mind map.

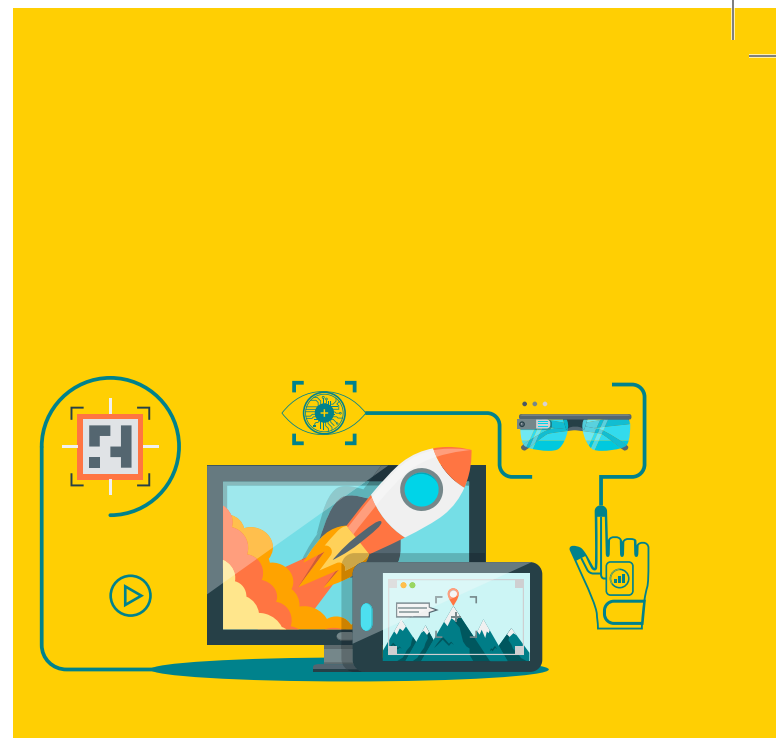
Practice-based Learning

Commonly used for subjects like performing arts, physical education, and sports.



Gamification

The Teachers can incorporate game design elements in their teaching and learning activities to make students highly motivated and excited. Using an educational game, students can engage in a competition with their peers, in which they will be rewarded with points or scores by their teacher when they manage to solve some problems or overcome some challenges, the degree of which can be gradually raised, thus making the educational game entertaining and emotionally rewarding.



EVIDENCE-BASED TEACHING STRATEGIES

- | | | |
|----------|----|--|
| Strategy | 1 | Clear Lesson Goals |
| Strategy | 2 | Show and Tell |
| Strategy | 3 | Questioning to Check for Understanding |
| Strategy | 4 | Summarize New Learning in a Graphical Way |
| Strategy | 5 | Plenty of Practice |
| Strategy | 6 | Provide Your Students with Feedback |
| Strategy | 7 | Be Flexible about How Long It Takes to Learn |
| Strategy | 8 | Get Students Working Together |
| Strategy | 9 | Teach Strategies Not Just Content |
| Strategy | 10 | Nurture Meta-Cognition |



TIPS TO MAKE LEARNING FUN

1

Incorporate Technology

2

Follow up Lessons with
a Fun Activity

3

Allow Student to
Conduct Experiments

4

Make Review Time Fun

5

Go on a Field Trip



SOME GUIDING PRINCIPLES

- Provide varied learning activities that capitalize on the five senses.
- Use any learning methods or activities favorable to students.
- Always consider students' readiness and the availability of resources when designing a lesson.
- Be sure to include elements that challenge students' minds when designing activities.
- Show your enthusiasm and passion while carrying out activities throughout a lesson.



EXAMPLE OF SUKHAGOGY FUN LEARNING MODEL APPLICATION

Course - KPD3016 Instruction, Technology & Assessment

UNIVERSITI PENDIDIKAN SULTAN IDRIS "BERKHIDMAT KEPADA PENDIDIKAN MALAYSIA" PRO FORMA KURSUS COURSE PRO FORMA UPS/PFK2018_v2		
1	Nama Kursus: Course Name:	PENGAJARAN, TEKNOLOGI DAN PENAKSIRAN 1 (INSTRUCTION, TECHNOLOGY AND ASSESSMENT 1)
	Kod Kursus/ Course Code:	KPD 3016
2	Sinopsis:	Kursus ini membincang dan membimbing pelajar membina kemahiran merancang pengajaran dalam lima aspek utama berikut: (a) menyatakan objektif pengajaran dan pembelajaran, (b) memilih dan menyusun kandungan dan bahan pengajaran (c) memilih pendekatan, kaedah dan teknik pengajaran yang sesuai, (d) menyediakan alat dan teknologi yang sesuai dalam proses pengajaran dan pembelajaran, (e) menyediakan, memilih dan menggunakan alat dan kaedah penilaian yang sesuai untuk menaksir dan menilai hasil pembelajaran. Pelajar akan mendapat kemahiran menyediakan set rancangan pelajaran dalam sesuatu topik dalam mata pelajaran pengkhususan mereka.
	Synopsis:	This course discusses and guides students to develop skills in five major planning aspects of the teaching process: (a) stating teaching and learning objectives; (b) selecting and planning of curricular materials and sequence of lessons; (c) selecting appropriate teaching approach, methods and techniques; (d) preparing the use of appropriate teaching-learning tools and technology; (e) preparing, selecting, and using appropriate tools and methods to assess and evaluate learning outcomes. Students will develop skills in the preparation of sets of lesson plans, based on the subjects they specialize

Course Outline

The course discusses and guides students to develop skills in five major planning aspects of the teaching process: (1) stating teaching and learning objectives; (2) selecting and planning of curricular materials and the sequence of lessons; (3) selecting appropriate teaching approaches, methods, and techniques; (4) preparing the use of appropriate teaching-learning tools and technology; (5) preparing, selecting, and using appropriate tools and methods to assess and evaluate learning outcomes. Students will

develop these skills during the preparation of lesson plans and when working on assignments based on their specialization.

Assessment

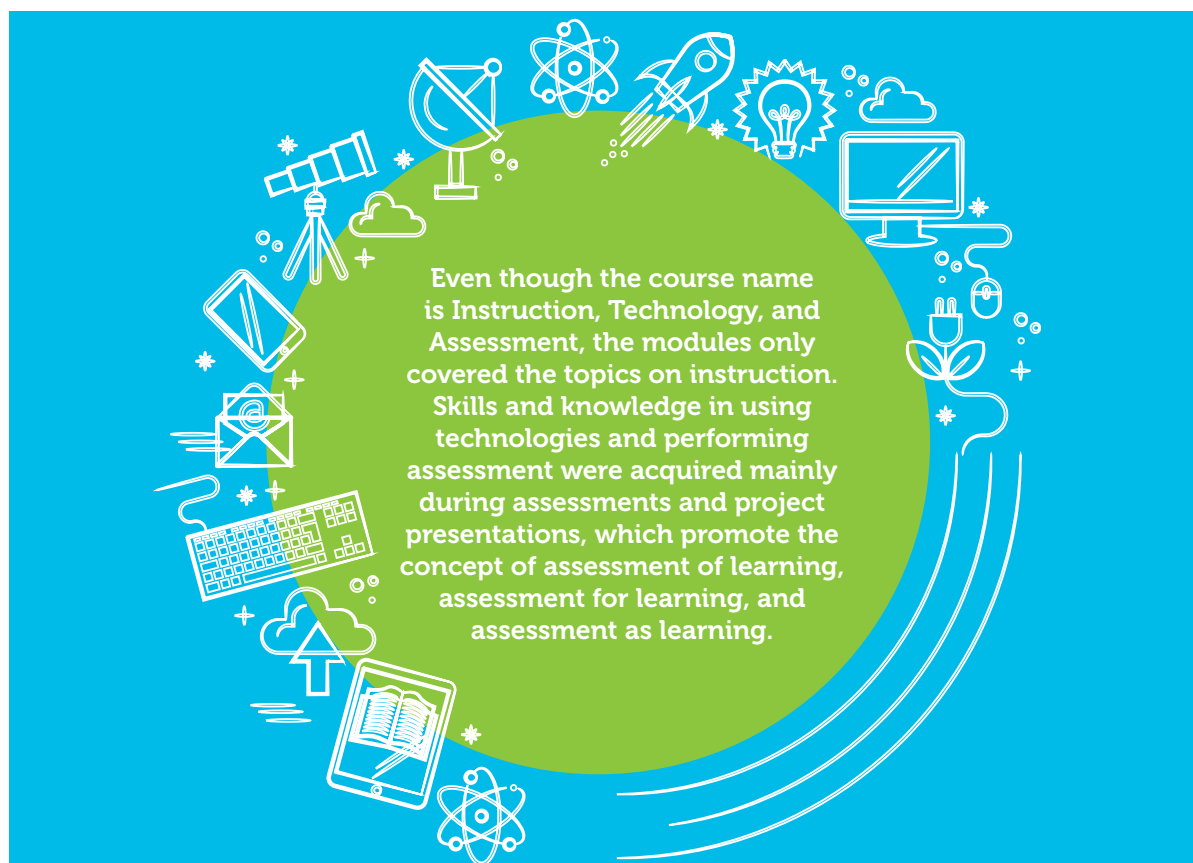
Students were assessed based on their performances in their assignments, which include their performances in the school orientation program, the preparation of lesson plans, the development of assessment items or tasks, quizzes, kit media, and school-based assessment.



The Task: Kit Media Assignment

“Based on one of the three lesson plans that you have submitted in Assignment 2, develop an instructional kit media. You need to include the following in your project submission”, which are listed as follows:

- Related lesson plans that will use the selected material.
- An interactive learning material that you have developed (for example, presentation slides, authoring software such as Adobe Flash, Geometer SketchPad (GSP) or other web authoring tools).
- A poster highlighting the material that you have developed (what is it about, its purpose, the origin of the idea, target group, strengths, and limitations).
- A user manual.
- Related assessment tasks either printed or online.



The Context

Students were in the fifth semester of their study in Bachelor of Education program (Mathematics). They had completed the Mathematics course and several educational courses, such as educational sociology, classroom management, curriculum, education philosophy and policy, and school orientation program, and they were taking such courses as a preparation for their practicum in Semesters 7 and 8. They would undertake the second part of this course later whereby they would have the opportunity to conduct micro-teaching activities and classroom action research to improve their teaching skills. Students were also familiar with several web-based authoring tools. For some Mathematics topics, such as probability, students felt that conducting simple experiments would help their students learn important concepts better. Considering all the above, a project-based learning approach and assessment was chosen.

Implementation

- a) Project planning - Allocate time for discussion, presentation of ideas, feedback, questions, and suggestions.
- b) Project monitoring - Provide time for the presentation of ideas, feedback, questions, and suggestions.

Results

The titles of some examples of the materials developed by the students are as follows:

- a) Lisho the Thinker (Adobe Flash)
- b) The Set (Scratch and concrete materials)
- c) Mushroom Board (experiment and concrete materials)
- d) Triple-O: Ochobot, Ochocard, Ochocube (experiment and concrete materials)
- e) Shysagon (GSP and concrete materials)
- f) Transboard (experiment and concrete materials)

Observation

Students were highly motivated to complete the assignment. They put in so much time and effort to learn to develop the materials. Even though the percentage was only 15% of the total assignment, they were willing to work extra hours to complete this assignment, as compared to the percentages of written assignments, such as Lesson Plan (30%), school-based assessment (10%), and Developing Test/Assessment Task (15%). In the first presentation of the proposal, students came out with several interesting ideas, which were still based on conjectures or imagination. The final presentation took place on Week 13 in a Math Exhibition. Students' works were assessed by a panel of lecturers during the presentation. In this assignment, all groups performed exceptionally well. Twelve learning materials were successfully created using concrete materials and other materials that had been developed with the use of various authoring tools and manuals. From the 12 learning materials, four projects won the best prizes.



SUMMARY

This section highlights a myriad of issues faced by teachers in their teaching practices given the differences due to cultural, social, cognitive and environmental factors prevailing among students, thus entailing teachers to carefully take such differences into account in preparing their lesson plans. This section also delves into a strategy to make learning fun and engaging based on a teaching and learning model called Sukhagogy Fun Learning Model. The highlight of this section culminates in the presentation of some examples of students' works and assignments after the implementation of the model.

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STUDENTS QUALITY

03



INTRODUCTION

Education serves as an essential component in the efforts to promote the development of nations in this century. As such, it must be directed toward achieving the aims of making all nations economically vibrant with the use of a knowledgeable and highly skilled workforce. Furthermore, learning is a life-long journey while education is a long-term investment.

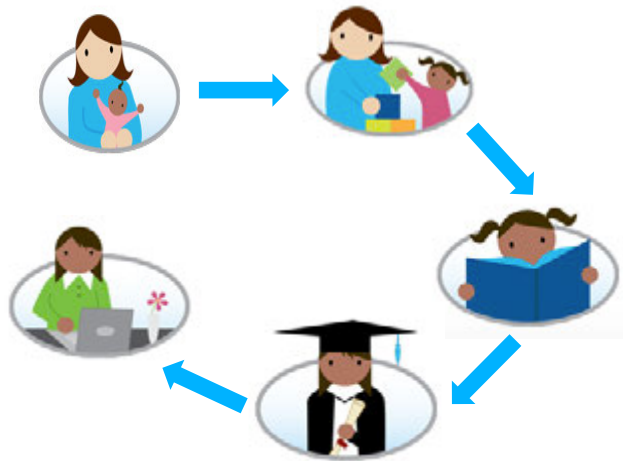
Effective early childhood education helps promote children's learning skills and development while at the same time contributes to children's mental health. Arguably, it will take years to educate and shape the mindset of citizens to make them responsible and virtuous.

Madeleine M. Kunin Quote:

“**Early childhood education begins early even before birth.**”

Given that globalization has intensified the career market, the competition for jobs becomes intense where graduates should demonstrate a mastery of broader and more sophisticated skills in addition to their chosen expertise in their fields. Challenges in incorporating these skills and knowledge into education have become widespread concerns among educators and scholars.

One longstanding strategy to produce competitive and highly capable graduates in this extraordinarily competitive employment market is through high-quality education. It can be said that the genuine role of education is fulfilled when the diverse roles of education are carried out successfully such as promoting knowledge, fostering global awareness, and protecting human rights while producing graduates of high quality, both physically and mentally.



ISSUES



Higher education across the world has been growing rapidly, entailing universities to produce highly competent graduates who can meet the changing needs of the contemporary workplace.



Holistic education appears to be an alternative to producing graduates with high competency. With increasing competition in the labor market, higher education institutions are compelled to better prepare graduates with employable skills.



The global unemployment rate was expected to be reduced by 0.1% in 2017 and by 5.5% in 2018, with an estimated 192 million people being unemployed. However, such expectation did not materialize because of the increasing number of people joining the labor force to seek employment. In 2019, it is projected that the global unemployment rate will stay the same as the number of unemployed is estimated to increase by 1.3 million (International Labor Office, 2018).



Efforts by the Malaysian government have helped improve graduate employability. With a series of programs earmarked under the Malaysia Education Blueprint 2015-2025 (Higher Education), such as a work-based learning program, more graduates have been able to secure jobs successfully.



A survey by JobStreet.com (in Malaysia) revealed:

1. Employers were not satisfied with the fresh graduates' quality level, where 24% believed that such quality was poor. Among the main reasons for the unemployment of fresh graduate included unrealistic demands for salaries and benefits, a lack of English proficiency, preferences for certain jobs and companies, and a lack



dissatisfactions had nothing to do with fresh graduates' academic qualifications, but more on students' bad attitudes and poor communication skills, which were demonstrated during job interviews or at the workplace. In addition, graduates' expectations of their first jobs were unrealistically too high, and many were not willing to apply for contract-based jobs.

2. The survey findings also revealed that 60% of fresh graduates asked for a salary of RM3.5k and above for their first job, which was too high given that the mean salary falls in the range of RM2.1k and RM2.5k. Also, their poor command of English was one of the main factors contributing to the unemployment of fresh graduates. This particular finding is unexpected given the Malaysian government's efforts to increase the English proficiency of Malaysian students.
3. The survey also examined other contributing factors that might influence employers to hire fresh graduates. As high as 39% of the employers indicated that they preferred fresh graduates who had held leadership positions in their universities while 25% preferred those who had high academic credentials. This particular finding signifies that academic excellence alone is not enough for fresh graduates to secure a job nowadays. They are expected to acquire and master various skills, in addition to their academic qualifications and outstanding personalities.



FRAMEWORK OF STUDENTS QUALITY CHARACTERISTIC

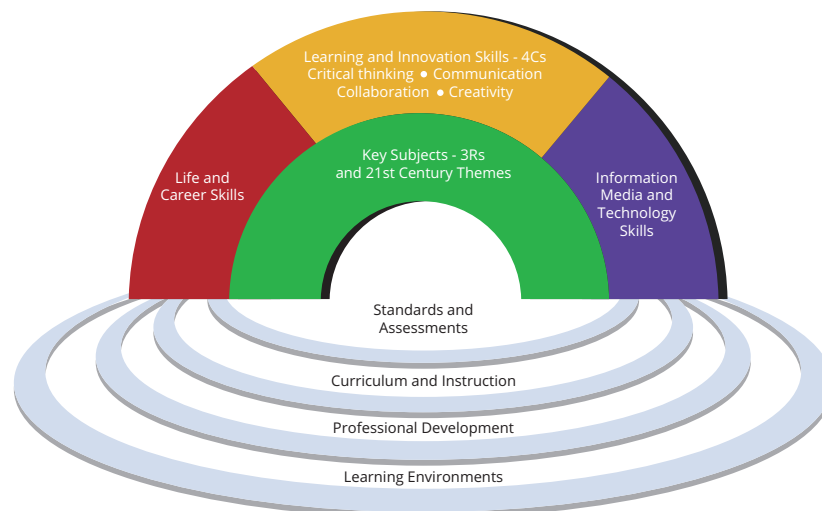
Based on input from teachers, education experts, and business leaders, a detailed framework for 21st Century Learning was developed (Partnership for 21st Century Skills, 2008).

The framework highlights the 21st century student outcomes with support systems. It also highlights the living and career skills that students need to attain by developing sound thinking skills, content knowledge, and social and emotional competencies, which include flexibility, adaptability, productivity, and accountability.

Learning and innovation skills focusing on creativity, critical thinking, problem-solving, communication, and collaboration are also emphasized by such a framework.

Objective:

"To develop a framework of students' quality characteristics."

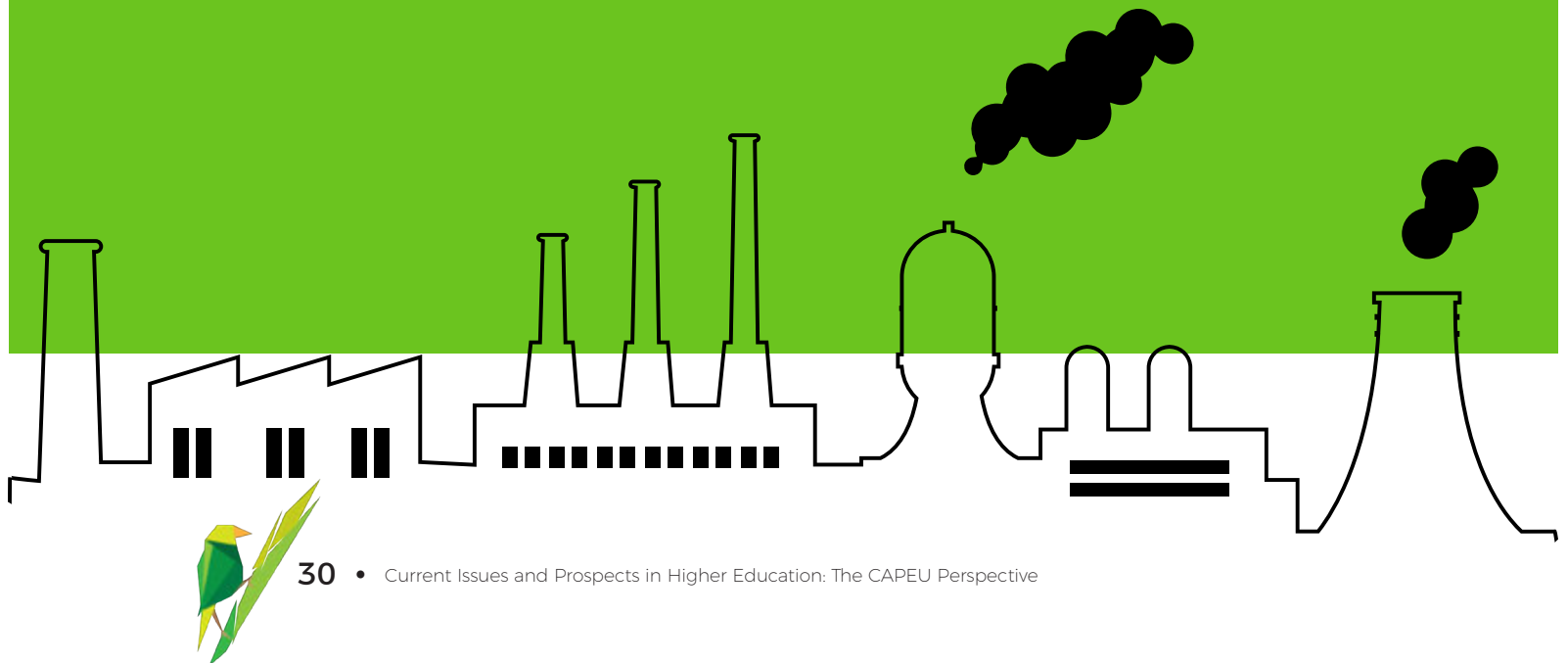


P21 Framework for 21st Century Learning
21st Century Student Outcomes and Support Systems



PRINCIPLES

- The Industrial Revolution that began in the 18th century involved technological, socioeconomic, and cultural changes.
- The First Industrial Revolution, which was largely centered on Britain and the northeastern States of the United States, was primarily focused on the mechanized production of textile products, which was then followed by the use of water and steam power.
- The Second Industrial Revolution, which appeared in the early 20th century, involved the use of electric power to create mass-production machinery and equipment
- The Third Industrial Revolution involved the use of electronics and information technology to automate productions of manufactured goods by going digital.
- The Fourth Industrial Revolution (IR4.0), which is driven by disruptive technologies and trends, have drastically changed how people live, work, and communicate.



To address the challenges of **IR4.0**, higher education institutions should produce graduates who will become job creators, technology inventors and innovators, and problem solvers.

GRADUATES

4.0

Students Qualities • 31



To achieve this goal, each institution should inculcate the following characteristics in students:

Multidisciplinary Skills

Via open and flexible (modular) curriculum, graduates will possess multidisciplinary skills and knowledge, suitable for the future needs of the current industry.

Holistic Ability

Graduates who possess positive values, skills, and knowledge will become a wholesome individual who can contribute to global well-being.

Resilience

Graduates with high resilience will be able to adapt to new changes and needs, respond to new ideas quickly, and deal with new challenges in the future.





Entrepreneurialship

Entrepreneurial graduates will be able to create job opportunities for themselves and others.

Digitally Literate

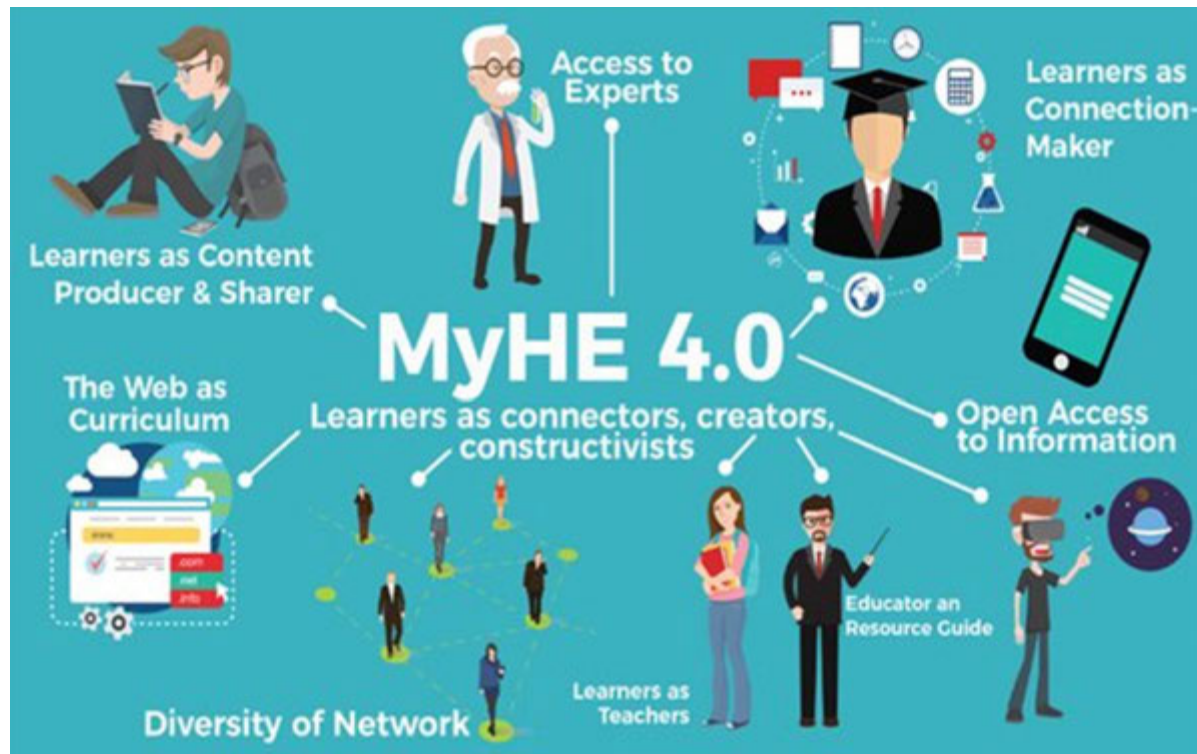
Graduates with adequate digital knowledge will be able to use, evaluate, and make appropriate decisions about the information and services offered on the cloud.

Lifelong Learners

Graduates who embrace lifelong learning will continue developing their knowledge and skills in their multidisciplinary areas of interest.



MALAYSIA'S STRATEGIES AND INITIATIVES



With the mission to sustain a second higher education ecosystem for the development and enhancement of individual potentials and to while fulfill the nation's aspirations, the Malaysian Higher Education 4.0 was conceptualized with detailed information of the impacts of Fourth Industrial Revolution on education (Ministry of Higher Education Malaysia, 2018). Essentially, it emphasizes the importance of Malaysian Higher Education as a catalyst to promote pro-active skills transformation. Additionally,

it stresses on the need to strike a fine balance between ethics and knowledge. In this regard, Sultan Idris Education University (UPSI) plays the role of developing graduates who are not only academically excellent but also morally virtuous. To this end, a campaign called "Keunikan Graduan UPSI - Cemerlang Akademik & Akhlak" was launched by the Vice-Chancellor of UPSI, Prof. Dato' Dr. Mohammad Shatar Sabran to help inculcate the awareness of the importance of both attributes among its students.





Ethic consists of three components:

- ethics and spirituality
- leadership skills
- national identity

Sultan Idris Education University (UPSI) aims to produce graduates with high academic excellence and strong ethics. The Campaign "**Keunikan Graduan UPSI - Cemerlang Akademik & Akhlak**" was launched the by Vice Chancellor of UPSI, Prof. Dato' Dr. Mohammad Shatar Sabran.



UNIVERSITI PENDIDIKAN SULTAN IDRIS
SULTAN IDRIS EDUCATION UNIVERSITY

SOARING UPWARDS

Keunikan Graduan UPSI

Cemerlang

AKADEMIK AKHLAK

Prof. Dato' Dr. Mohammad Shatar Bin Sabran
Naib Canselor

f Like NAIB CANSOLOR UPSI #upsibest #ncupsi #upsinopendidikan #cemerlangbersama



SUMMARY

This section highlights the global challenges that nations have to deal with in attaining a sustainable development, which has been detailed by the United Nations in 2015. This section also outlines appropriate strategies that can help developing nations to achieve the educational goal of producing quality students who are knowledgeable, highly skilled, and resourceful to face the challenges of the 21st century, the goal of which can be realized through holistic development of graduates with strong academic and moral values.





TEACHER QUALITY

04

TEACHERS
PLANT SEEDS
THAT GROW
FOREVER...



INTRODUCTION

The dominance of human capital theory, which argues for the function of education as a key factor in fueling economic growth, has influenced policy-makers around the world into moving education to the center stage of ensuring economic survival and the growth of nation-states. Over the past five decades, nation-states around the world have carried out several education reform policies to address a range of educational issues, especially those related to the quality of education and student achievement.

It is argued that one of the most significant school-related factors that influence student achievement is teacher quality. Evidence on the importance of teacher quality can be seen through various discussions on the issue, which leads to the question of how the quality of teachers can be improved. Governments around the world have been investigating and investing in school-reform activities to improve student performance. These include introducing credenti requirements, shrinking the class size, rethinking the language of instruction, realigning the curriculum, and so forth. Most of the time, however, the efforts on improving the quality of teachers have not been well communicated to the masses.



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ISSUES

- 1 Teachers have to be leaders in the classroom and school. They need to know how learning should take place that is suitable to the levels of students' intellectual, physical, social, and emotional development.
- 2 Teachers need to have a deep understanding of instructional practices that need to be aligned with content areas or disciplines and students' needs and on the utilization of a variety of approaches and technologies in their instructional practices.
- 3 Teachers must foster students to work in teams, develop their critical thinking and problem-solving skills, and also improve their communication and leadership skills.
- 4 Teacher quality matters in determining school effectiveness and student achievement. However, such matter has not been properly addressed, which continues to impede student learning over the years.
- 5 In most cases, teaching is not their first choice, thus teachers may not have the passion and know-how to teach nor the philosophy of teaching. Furthermore, some Continuous Professional Development (CPD) programs are ineffective to help teachers improve their instructional skills.
- 6 Teachers need to be aware of the various challenges faced by students in learning. As such, they need to be able to help improve student learning by adopting various strategies and technologies.
- 7 Teachers need to get involved and actively take part in the development of institutions through the sharing of ideas and initiatives.
- 8 Teachers need to promote continuous outreach programs to their communities by capitalizing on strong networking to create a sense of belonging and responsibility among the local and global communities.
- 9 Teachers have been found to lack positive emotional intelligence. As such, they may not be able to perceive and manage their own and students' emotions, demonstrate empathy, and manage behavioral challenges. Hence, lies the needs to identify the characteristics of quality teachers that have a profound impact on of student achievement.



Because teaching is a humanistic profession, the most important quality that teachers must have is compassion. A compassionate teacher can help students develop noble attributes through his or her actions or good deeds. This helps students to be more caring and open to the world around them. The attributes that a compassionate teacher should possess are exemplified by the following examples.

A **caring** teacher not only focuses on imparting knowledge to the students but also connects with students, who in turn become more receptive to what is being taught. Arguably, teachers who get to know their students' interests, talents, and needs are better able to prepare effective lessons that help students feel the partnership of the learning experience.

A **considerate** teacher demonstrates empathy, is intuitively aware of others' needs, and will put others' needs over his or her needs. Being a considerate teacher also means that one would always mind their manners and behave considerately with others. Empathy is an important quality that helps teachers to understand other peoples' perspectives besides their own. In essence, it is a basis that teachers have to rely on in their quest to understand their students, with each having his or her unique emotions, and to leverage the relationships between the teacher and students.

An **empathetic** teacher is one who turns the classroom into a safe place for students to work through and overcome cultural, racial, socioeconomic, and personal issues by following appropriate guidelines on how students engage with one another.

A distinction between the terms "fair" and "equal" has to be made as most people are confused with such terms. Invariably, most people will say that to be a fair teacher, one must treat everyone the same. However, a **fair** teacher understands that students are not the same and, as they are different, one cannot use a one-size-fits-all solution. For example, a fair teacher will not use the same treatment to two students who did not complete their homework for different reasons.

A **passionate** teacher is committed and dedicated to improving student learning and achievement. When teachers are passionate, their students will have a strong motivation to achieve high academic excellence.



Helen Keller once said: the highest result of education is tolerance. For this to materialize, we need teachers who are **tolerant**.

A **kind** teacher is one who shows kindness to students, colleagues and parents. Such a teacher will be able to bring in positive changes in the classroom and school environment which help make students feel welcomed, cared for and loved. A kind teacher serves as a role model that students can emulate to make them kind and caring too.

Teachers need to be **trustworthy** by living up to the legitimate expectations that are placed upon them. A trustworthy teacher is one who performs job-related functions well and protects and maintains the wellbeing of students.

Collaboration is an essential aspect of the teaching profession. As such, a collaborative teacher works together with the learning community to bring in changes in education. However, for this to happen, teachers need to be **value-driven**. Teachers are the key person who explicitly imparts sound ethical and interpersonal values to children to make them responsible. Teachers need to work with others to better understand and accommodate different values existing in a society and not to dictate their one-sided value system.

Technology plays an important role in today's world. Today's education system needs to adopt new learning methods where teachers prepare students for an ever-changing world. **Technology-driven** teachers are those who can identify and select suitable technologies to be used for teaching and learning purposes. In other words, teachers need to know how and when to use technology and determine its purpose.

Occasionally, a teacher may need help from those who are familiar with the use and benefits of various technologies to be incorporated in the classroom. This means that teachers need to be **flexible**. Even though lesson plans are important in the teaching and learning process, they are not cast in stone. Teachers should understand that the differences in students' curiosity and ability may require them to deviate from what was originally



planned. The ability to be flexible will allow teachers to address the different levels of students' curiosity, maintain classroom control, and respond to students' different abilities, needs, and interests.

Teachers also need to be **open-minded** to help them improve themselves as responsible teachers. One of the ways for improvement is through observations, either formally or informally. Teachers should be open-minded when they are being evaluated or criticized by their superiors, colleagues, parents, and even students.

Creativity and innovation are fundamental to creating interesting learning activities. Hence, being a teacher also requires one to be creative and innovative. To stay relevant in our rapidly evolving world, we need to develop **creative and innovative** minds that can adapt and face future challenges that are both unpredictable and complex. To be creative and innovative, one needs to be bold, resourceful, analytical, technology-driven, inquisitive, and open-minded.

Many may frown at the concept of risk-taking in teaching and learning. Are teachers taking risks at the expense of their students? A **risk-taking** teacher does not make this decision lightly. Risk-

taking here means that a teacher is bold enough to make the necessary changes or to adapt lessons in ways that ensure student learning can take place smoothly. By experimenting with new ideas and ways, teachers are also encouraging their students to be creative and innovative.

To be creative and innovative, the teacher needs to be resourceful. Being **resourceful** entails the ability of teachers to find and use available resources to achieve the learning objectives. The resources to be used can technology-based materials or other conventional materials that can help teachers teach more efficaciously.

Part of being creative and innovative is the ability to analyze any given situation. Such **analytical** skill is essential and requires teachers to collect and analyze information for problem-solving and decision making.

As we encourage students to be curious and inquisitive, teachers too need to be **inquisitive** as a role model for students. By having inquisitive minds, teachers can foster and promote active learning by posing probing questions to students or by giving them a problem scenario in which students need to show relationships or causes and effects and to develop solutions.



As we move further into the 21st century, one important quality that teachers must have is to be **adaptive**. Teachers need to be aware of learners' differences and must be prepared to adapt accordingly.

Dynamic teachers are those who shift and change over time, who evolve as students evolve. However, to become dynamic, teachers must be comfortable with the shift that is taking place in the educational sphere. For instance, teachers and students may not have to rely on textbooks anymore as they can use technology-created materials or contents, which are constantly evolving. Furthermore, students should be given some autonomy in learning to give them a sense of control over their learning.

Finally, teachers have to be reflective. A reflective teacher is one who carefully examines what is being done in the classroom, thinks about why it has been done in that way, and thinks about whether it works. It is an important process of self-observation and self-evaluation. By being **reflective**, teachers can identify and explore the strengths and weaknesses of their practices and beliefs, which can surely help them make improvements to their teaching.

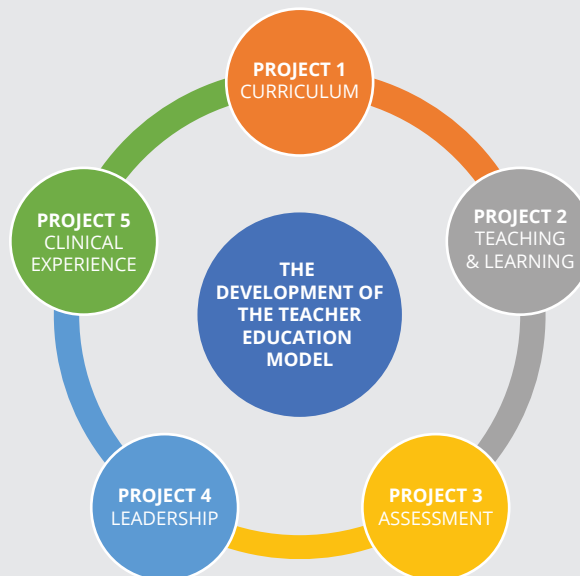
Such are the qualities of a great teacher who can help prepare students for the future. The question now is how do we develop these qualities among teachers?



UPSI 3E (ENGAGE, EMPOWER, AND EMANCIPATE) TEACHER EDUCATION MODEL

In 2014, Universiti Pendidikan Sultan Idris (UPSI) was awarded the Niche Research Grant Scheme (NRGS) by the Ministry of Education (MOE) of Malaysia, which was one of the initiatives to encourage universities and higher institutions to highlight the niche of their universities through research and development. Being the only education university in Malaysia, UPSI has proposed the development of a teacher education model that can serve as a reference or a guideline for all teacher education programs in Malaysia. Accordingly, a research project

titled 'The Development of a Teacher Education Model for Preparing Future Teachers in Malaysia' was carried out encompassing five smaller projects: the curriculum, teaching and learning, assessment, teacher leadership, and clinical experiences. The overall research project was spearheaded by the Deputy Vice-Chancellor of Research and Innovation, UPSI, and each project was headed by selected academics from various faculties as the principal researchers.



The NRGS and Sub-research Projects



The research objectives of the NRGs project, which commenced in January 2013 and completed in December 2018, are as follows:

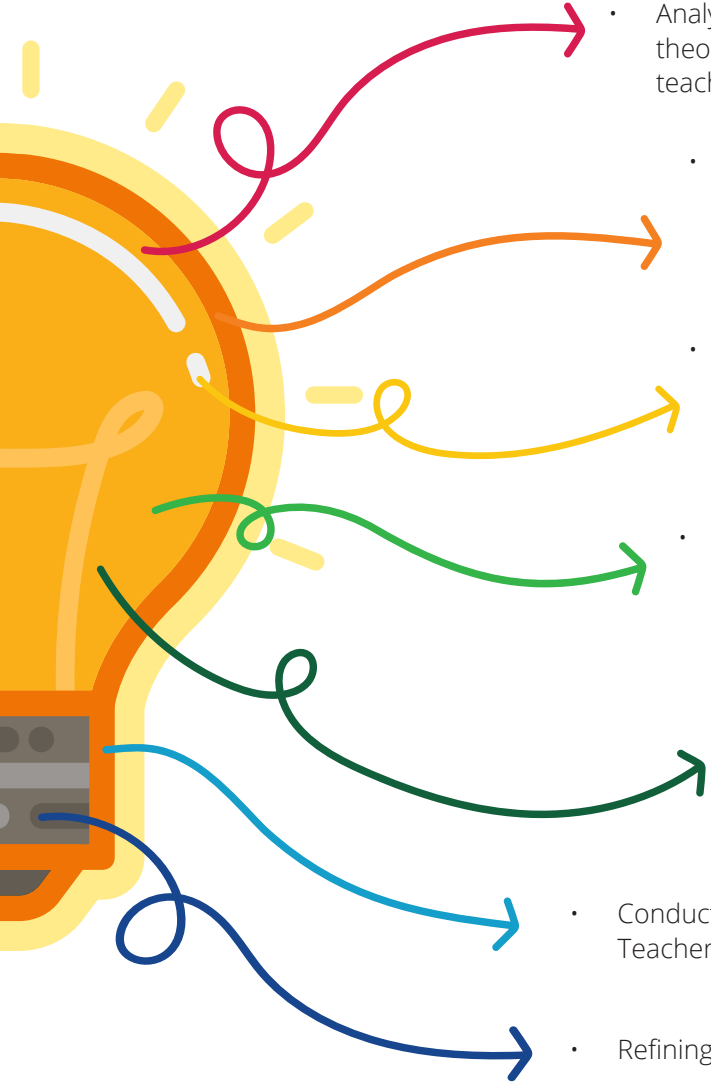
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- Analyzing the existing teacher education models on of policy, theory, and practices of selected local and international teacher education programs.
 - Benchmarking the profile of knowledge, skills, and values that will form the foundations for constructing a curriculum framework for preparing quality teachers for the future.
 - Validating a curriculum framework which encompasses guiding principles for teaching and learning, assessment, teacher leadership, clinical experience, and teacher induction.
 - Developing a curriculum for selected teacher education programs at the pre-school, primary and secondary levels.
 - Validating and refining the curriculum for selected teacher education programs at the pre-school, primary and secondary levels and producing a Teacher Education Model for developing quality teachers.
 - Conducting an impact study to gauge the effectiveness of the Teacher Education Model for developing quality teachers.
 - Refining and finalizing the Teacher Education Model.

Figure 2 The Research Objectives



Issues Related to Existing Teacher Education Model

An ideal teacher education model is the one which is sustainable over time regardless of the continual changes in the teacher education curriculum, teaching and learning as well as assessment. Such a model should provide a framework collaborative and outline the shared values and goals with a focus on the interest of teacher learning and educational research. It should also recognize the need for mutual respect of those who are involved, may it be student teachers or teacher educators, in terms of acknowledging their roles, beliefs, perspectives, experiences, expertise, and knowledge.

The analysis of the teacher education in Malaysia has shown the predominance of the Objective Curriculum Model, derived from the Technical Rationalist Approach (Schon, 1983), which is primarily based on behavioristic orientation (Zechner, 1993). Inevitably, such an orientation has resulted in a dichotomization that widens the gap between theory and practice (Ratnavadivel et al., 2013).

Furthermore, there seems to be a growing conflict between the prescriptive and the descriptive nature of teacher education. One of the prevalent questions is whether teacher education is to be grounded on the positivist search for universal context-free laws or it is to

be characterized by the understanding of context meanings (Bernstein, 1977). In this regard, Smyth (1980) argues that although pedagogy can refer to a systematic way of advancing learning, there is also a sense to act 'pedagogically', which in many ways will empower meaningful learning. Thus, inquiry-based teaching grounded on empirical foundations has become an imperative (Ratnavadivel, 1990) in developing teachers who can conceptualize and develop professional knowledge (Schon, 1983, 1987) by integrating both theory and practice.



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STRATEGIES AND INITIATIVES

The Guiding Principles

The challenges in teacher education and the responsibilities of teacher educators are to prepare prospective teachers who can adapt to the different contexts, which are socially and culturally demanding. The unpredictability and uncertainty of such contexts require teachers to possess skills that will enable them to be thoughtful and adaptive in facilitating meaningful learning experiences for their students. This requires a 'thinking teacher' with an inquiry mind who embraces criticality, creativity, and innovation as part of his or her professional development as an educator.

The development of the guiding principles was based on the analysis of several teacher education frameworks from first-class teacher education programs, such as those from Singapore, Finland, Britain, and the United States (Darling-Hammond & Lieberman, 2012). Based on the analysis, several assumptions were made to inform the development of the guiding principles as follows:

- a. Knowledge, skills, competencies, and dispositions are seen as knowledge which informs teaching.
- b. Access to knowledge is interpreted as understanding which enables teachers to perform in varying contexts.
- c. Teacher's knowledge is a medium of thinking which is supportive of critical, creative, and emphatic thinking.
- d. The teacher education curriculum is dynamic and fluid and can be experimented in actual contexts of learning practices as a basis for reflection and translated into educational actions and practices.
- e. Teachers' knowledge is not static and can be improved through action research on their classroom practices.
- f. Teaching and learning, as well as student assessment, are seen as interactive and collaborative endeavors between teachers and students.
- g. Situational understanding and situational judgments are based on teachers' reasoning, actions, and reflection.

Such guiding principles can help improve the quality of curriculum, teaching and learning, assessment, teacher leadership, clinical experiences, and the overall 3E teacher education model. Initially, the guiding principles consisted of ten principles, but after a validation and revision process, the number of principles was reduced to eight only.



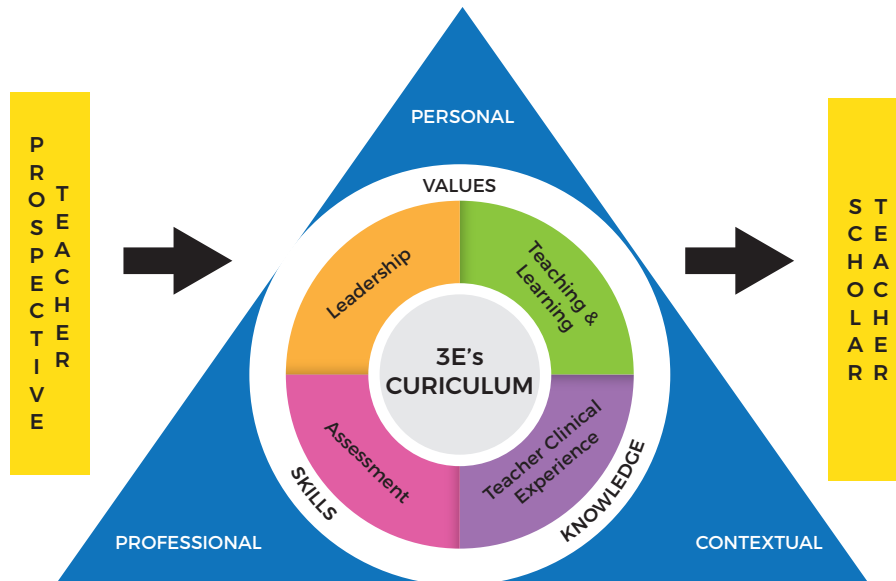
The Eight Guiding Principles

Teacher education curriculum should focus on nurturing teachers based on the following principles to instill values, skills, and knowledge (VSK) into the student learning process. The following are the descriptions of the eight guiding principles:

- 1 Teacher education develops teachers who can critically examine, appreciate and practice the educational values of the teaching profession in national and global contexts.
- 2 Teacher education develops teachers who can explore and create knowledge about their practice independently and collaboratively, have excellent core competencies and skills in the subject matter, and are able to apply these competencies and skills in the teaching and learning process.
- 3 Teacher education develops teachers who view teaching, learning, assessment, leadership, and clinical experiences as being multi-dimensional, integrated, and reflective.
- 4 Teacher education develops teachers who are able to create a teaching and learning environment that provides sufficient scope and opportunities to foster intellectual excitement that will optimize learners' potentials and passion for lifelong learning
- 5 Teacher education develops teachers who are able to provide quality learning space, resources, and technologies for learners that help them engage in active, cooperative learning that promotes positive social interactions and self-fulfillment.
- 6 Teacher education develops teachers who are competent to adapt or respond to changing technology and its application in educational practices.
- 7 Teacher education develops teachers who can become educational leaders with sound attitudes and strong capabilities to provide ideas, create innovations, and manage changes through evidence-based practices.
- 8 Teacher education develops teachers who can foster continual outreach programs and networking with local and global communities.



3E TEACHER EDUCATION MODEL



3E Teacher Education Model

The 3E Teacher Education Model (TEM) is a process and a situational model, which begins at the onset of the teacher education program. Qualified candidates of the teacher education program are prospective teachers whose learning experiences can prepare them to become teachers with scholarly attributes of 3CIA. The underpinning of the TEM is the eight guiding principles encompassing three important dimensions: professional, contextual, and personal dimensions. These dimensions have been interpreted and defined based on the principles outlined in the Malaysian Philosophy

of Education, Teacher Education Philosophy, and the Teacher Education Standards. The professional dimension comprises the education foundation, professional practices, subject contents, educational electives, education specialization, and clinical experiences. The contextual dimension focuses on educational research and development, school environment, education agencies and associations, and emerging or future societal, political, economics, socio-cultural, and school contexts. The personal dimension encompasses individual worth, individual dignity, ethics, morals, spirituality, aesthetic values, self-fulfillment, self-actualization, commitment, resiliency as well as sustainability.



A curriculum should be able to engage student teachers with rich experiences that eventually help them to become scholars. Surely, such development necessitates active learning which requires participatory actions from student teachers either as individuals or part of the community of practice. A curriculum should also empower student teachers to be autonomous or independent in their thinking, decision making, and actions based on pedagogical reasoning of situational contexts. This includes the autonomy of learning independently and making decisions of pedagogical choices as co-constructors and co-creators of knowledge.

A curriculum which emancipates can help such students to have greater freedom from the regulation of power, interconnectedness, and agency of moral. Such freedom enables teachers to cater for their professional development based on self-evaluation, reflection, and action-based research in the quest of improving their practices that leads to self-fulfillment. Emancipation strengthens their confidence in sharing knowledge and evidence-based practices.

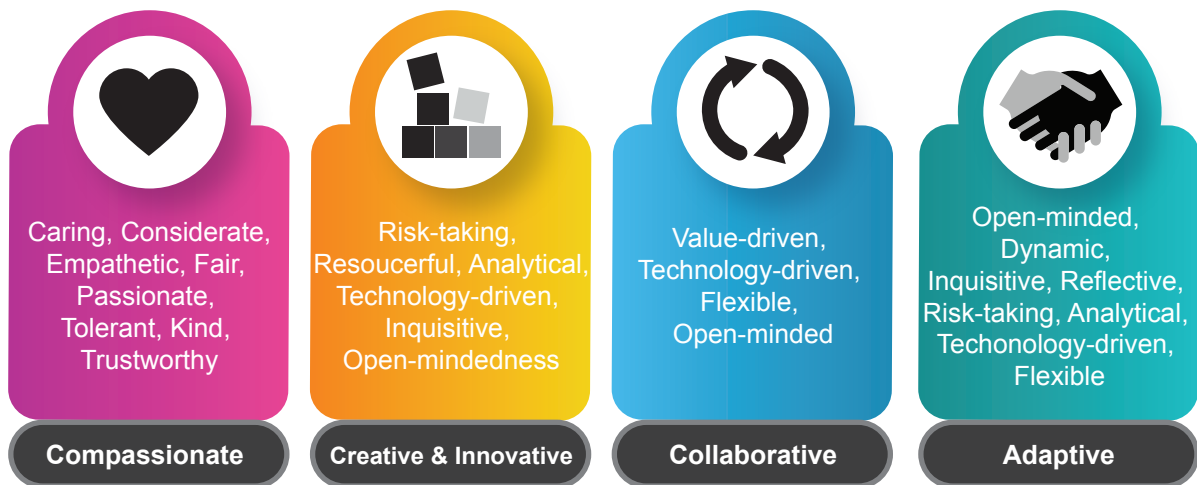


The 3CIA Attributes

The 3CIA model highlights the attributes of scholar teachers which determine the outcome of the model. According to Shulman (2011), it is essential for teachers to view teaching as scholarly work, which often results in innovative teaching. Scholar teachers are teachers who are knowledgeable in pedagogy and expert in teaching by engaging in reflective practices. The development of such teachers can be realized through Scholarship of Teaching and Learning (SoTL) (Boyer, 1990), which is a systematic reflection of one's classroom with the focus of enhancing student learning. With high-impact practices and purposeful pathways (Morrison, 2012), scholar teachers can acquire the following attributes:



ATTRIBUTES SCHOLAR TEACHERS'



SUMMARY

The current global trends of Education 4.0 and the emphasis on knowledge as the main driver of developments of individuals and nations have radically changed the landscape of education in many countries. Specifically, the quest for student-centric and active learning as central to the teaching and learning process has entailed the needs to review teacher education programs in preparing teachers for the future. Teachers in the future are expected to be able to manage and adapt to changes and to apply contemporary theories of contextual

learning and constructivism to their teaching practices based on knowledge, skills, values, and dispositions relevant and meaningful to student learning. The eight guiding principles and VSK underpinning the 3E Teacher Education Model can be relied on to provide directions for the development and sustainable growth of teacher education curriculum, teaching and learning activities, assessment, teacher leadership, and clinical experiences, encompassing contextual, professional, and personal domains. The main aim of the teacher education model is to engage, empower, and emancipate student learning that can help develop scholar-teachers with 3CIA attributes, namely compassionate, collaborative, creative, and innovative, and adaptive attributes.



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FUTURE CLASSROOM

05



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INTRODUCTION

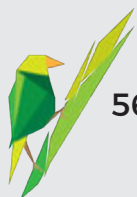
“
Do you wish to have a
smart classroom that
can entertain multiple
needs of educators and
learners?
”

There are different perspectives of how to implement the future classroom for schools or education institutions, some of which will be explored in this section to engage discussion and reflection among the CAPEU academic community members. The objective of this section is to discuss the future classroom in trends, issues, challenges, implementation strategies, and the way forward, which are part of the broader spectrum of CAPEU initiatives in transforming education throughout the Asia Pacific region.

This section must be read together with
respective sections in this book as a
part of teaching, learning, and facilitating
system and environment

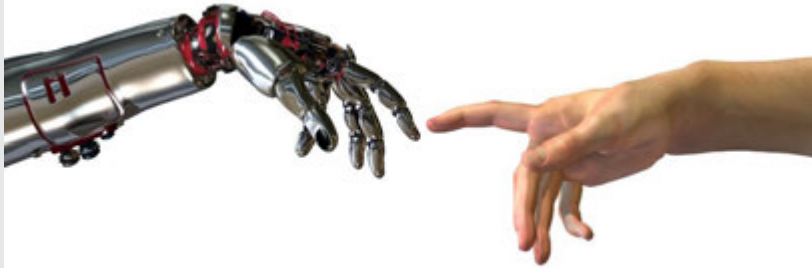


Three different scenarios of conventional schools in Malaysia.



ISSUES AND CHALLENGES

Admittedly, to start a future classroom project is not an easy task as a myriad of issues and challenges will emerge throughout the implementation of such a project.

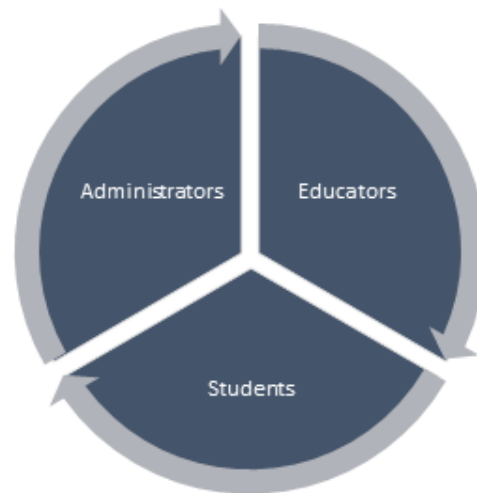


1

Trends: Human versus Technology

Firstly, in providing the best and appropriate teaching and learning environment, the potential conflict between the human factor and technological factor should be taken into account in the early stage of the project. Essentially, the human factor involved in a future classroom project consists of three components, namely the educator, the student, and the administrator. Educators need to adapt to the continually changing technologies that they will apply to their teaching practices. Arguably, in the technology-driven millennium, students will be eager to learn using technologies. As such, there is a need to focus on the technology acceptance of students concerning the use of technology in the teaching approach employed by teachers. The last component of the human factor is the administrator, whose main role is to prepare, implement, and maintain a host of technologies. Currently, most of the technologies available for educational purposes, such as Augmented

Reality (AR) technology, Virtual Reality (VR) technology, video recording system or even video streaming, are quite expensive. Therefore, the administrator needs to carefully consider the appropriate technologies that are not only efficacious but also affordable, which they can use in their teaching.



2

Case Study: Malaysian Schools

Like any other nations, Malaysia also witnesses a continually changing dynamic of teaching in the classroom. To address such dynamic, the National Education Blueprint was released in 2013, detailing the challenges, issues and potential remedies of education of Malaysia from the preschool level to the post-secondary level. As highlighted in the National Education Blueprint 2013–2025, 11 educational shifts have to be carried out to effect the required changes in education that can help improve the living standard of Malaysians. In principle, each shift aims to address at least one of the five outcomes of the educational system, namely access, quality, equity, unity, and efficiency. Among the shifts listed in the document, the relevant ministry strongly emphasizes the conducive setting of a teaching and learning environment in the future.

3

Case Study: UPSI

Since 2017, UPSI has conducted the future classroom in its main campus, and such an initiative is still ongoing with the increasing use of innovative, novel educational technologies. To



date, UPSI has a total of nine smart classrooms and the number has been gradually increasing according to the niche areas of nine faculties in UPSI. Ideas and lessons learned from the implementation of such smart classrooms will be discussed in the following sections by highlighting the experiences and best practices gathered from such an endeavor.

Being the only education university in Malaysia, UPSI has a vision of providing practical solutions to the challenges and problems in developing the future classroom. As such, UPSI has carried out several studies focusing on such a vision, the outcomes of which have helped develop many innovative ideas for the design of an appropriate future classroom for universities or schools. Currently, the UPSI Smart Classroom is one of the initiatives conducted by UPSI that has provided greater insights into the understanding of how best to design and develop such a classroom in the future.



4

New Generation of Education Environment

Issues regarding the setting up of the appropriate teaching and learning environment have been debated by many scholars lately, with some advocating the use of new, hybrid teaching and

learning approaches, such as problem-based learning (PBL), personalized learning, and others.

To enrich the teaching and learning activities between educators and learners, a two-pronged approach can be used. We can start with a certain teaching approach and then select the technology that can fulfill the teaching requirements. Alternatively, we can select specific technology that is suitable for a particular teaching approach and students' learning styles.



Photo by : www.freepik.com



5

Components of a
Future Classroom

In principle, the new generation of educational environments consists of three components as follows:

► **Teaching, Learning, & Facilitating (TLF) Strategies for Future Classroom**

The following table summarizes the aspects that need to be considered in developing and implementing TLF strategies for the future classroom:

Issues & Challenges	Description
Roles of Educators	The role of educators is continually changing due to the changes in technologies and the diversity of student populations. They should serve not only as a teacher or a trainer but also as a facilitator, a consultant, and a mentor to students as well.
Pedagogy vs Andragogy	Innovative teaching methods or teaching practices (i.e., pedagogy or andragogy) need to be explored and used. New pedagogical methodologies, such as heutagogy, peeragogy or paragogy, and cybergogy, can be used to improve teaching. Whereas, novel learning approaches, such as action learning, mastery learning, experiential learning, discovery learning, service learning, situated learning, design-based learning, problem-based learning, project-based learning, phenomenon-based learning, inquiry-based learning, challenge-based learning, and game-based learning, can be deployed to enhance student learning.
Student-Centric	The rebranding of conventional methods is aimed at promoting student-centric learning.
Collaborative & Cooperative	Teaching using technologies can help educators to apply and practice collaborative and cooperative learning with their students.
Performance-based Assessment	Performance-based assessments should be used for more comprehensive, precise assessment of student learning.
Teacher-Generated Content (TGC)	Any form of learning contents, such as images, videos, text, and audio, can be created and hosted online, such as social media, MOOC, mobile apps, or other platforms. Future teachers must be able to create and share their teaching contents by uploading them in multiple formats onto different online platforms. As such, they must acquire a set of skills that can help them create and use teaching contents that are not only educational but also appealing.



► Classroom Technology Infrastructure

In the Technology Adoption Lifecycle, the acceptance of a new technology depends on the demographic and psychological characteristics of educators and learners. If they are fascinated with any specific technology, they will use it in the classroom, and even adopt such a technology in their daily lives. In the context of teaching and learning, the use of appropriate technologies can surely help teachers to deliver their lessons more efficiently and enable students to learn with a higher degree of efficacy and enthusiasm.

From the perspective of connectivism, networking and connectivity are the main two ingredients for establishing a global classroom, where teaching and learning can take more flexibly with greater ease. In such a classroom, teachers and students will have ample opportunities to collaborate and conduct research using the same tools used by professionals and share their findings with others all over the world. Many successful implementations of such a classroom have been highlighted in the literature, one of which is a project called “The Hole in The Wall” by Mr. Sugata Mitra from India, which bagged the 2013 TED Prize.

The physical arrangement of the classroom also plays an important role in creating a fun and rich educational environment. Such a physical arrangement also focuses on the aesthetics features of the classroom and the safety and security issues concerning human, technologies, and networking.

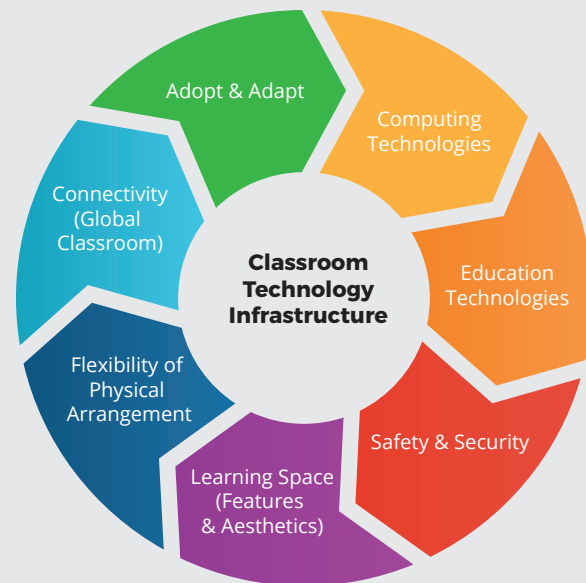
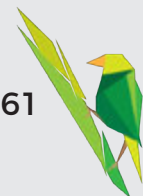


Photo by : www.freepik.com



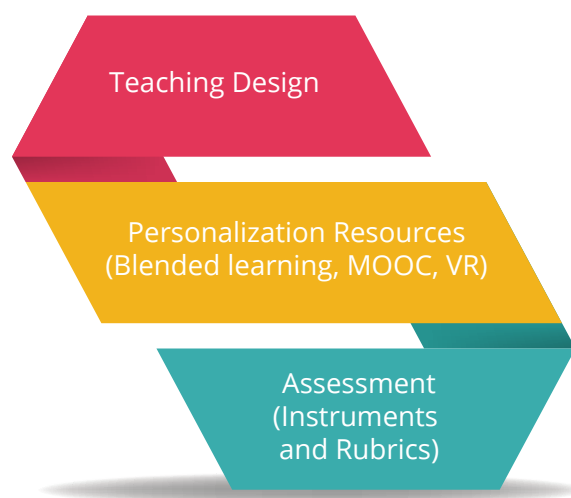
With the advancement of mobile technology, learning too can be done wirelessly and seamlessly in any environments or learning setting. It is believed that in the future, seamless learning can support and enrich students' learning experiences

► Classroom Technology Infostructure

The reliance on a mortar-and-brick classroom is slowing diminishing in magnitude in today's world that is driven by a dazzling array of technologies. Learning in the physical classroom is being supplanted with virtual learning. A case in point is GoogleClass, which is essentially a virtual learning space in which students all over the world can use to learn and collaborate with others. Likewise, UPSI has its own native Learning Management System (LMS) called MyGuru, which is being used by both lecturers and students as a platform for teaching, learning, discussion, and research. Similarly, the Massive Open Online Content (MOOC) platform, which is a non-proprietary platform, can also be used to support learning in a virtual classroom. Interestingly, such infostructure provides many opportunities for to venture into blended learning or flipped classroom to help them overcome some of the teaching constraints inherent in traditional or conventional learning methods. Educators can also use VR technology to create a virtual class in which their students can enroll to learn a particular topic, the learning of which can be mediated by an avatar representing a teacher.

Ideally, teachers and students can use all sort of technologies in their teaching and learning, respectively. However, in reality,

many factors govern the use of educational technologies, such as technical, financial, and logistical considerations. Typically, most schools, colleges, and universities are cash-strapped and have no additional financial means to use such technologies, given the high procurement cost of hardware and software involved in setting up the essential infrastructure. Furthermore, the cost of training of staff and maintenance of equipment will further dent their already depleting budget. Hence, teachers need to be creative and resourceful by seeking other alternatives that are affordable but as effective as other expensive learning tools. For example, they can leverage the use of mobile devices, notably mobile phones, to foster mobile learning among their students. With cloud-based computing, learning contents can be shared and exchanged among students by using their mobile phones. Such learning can surely enrich student learning as they gain access to learning materials anytime, anywhere, thus making learning more engaging and exciting.



STRATEGIES AND INITIATIVES

Teachers need to plan sound strategies and initiatives such that the use of relevant educational technologies, contextualized in a particular educational setting, can result in high-impact learning. Understandably, such technologies can help teachers create a future classroom, which can be borderless and virtual. However, there will be many issues that teachers need to deal with before such a classroom can materialize. Hence, university academics, researchers, and scholars have to play their respective roles in helping teachers to address issues that may impede the efforts to create the future classroom by consolidating their expertise, experiences, and know-how with other parties, such as educational institutions, education ministries or agencies, alumni organizations, corporations, public organizations, and non-governmental organizations (NGOs).

Borderless classroom

Blue Ocean Strategy with others

Students of the Future

School of the Future

Guidelines for designing a physical
or virtual classroom

Guidelines for designing a learning
approach for the future classroom

Guidelines for managing and sustaining
the future classroom

SUMMARY

We need more efforts to encourage and support each other in the development and implementation of a future-classroom in our educational institutions. By having the appropriate guidelines and models, as discussed above, we hope that effective solutions to prevailing learning issues or problems can be found to further improve the educational systems of the nations of the Asia Pacific region as well as other regions of the world.





EQUAL OPPORTUNITY IN EDUCATION

06



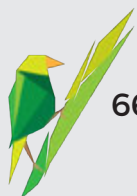
INTRODUCTION

In September 2000, the world leaders adopted the United Nations (UN) Millennium Declaration to combat poverty, hunger, disease, illiteracy, environmental degradation, and discrimination against women. Subsequently, the United Nations Millennium Development Goals (MDGs) were established based on this declaration, which consisted of specific targets and indicators. Altogether, eight goals had been unanimously agreed by all the 191 UN member states that were aimed to be achieved by 2015. The second goal (Goal 2) of the Millennium Development Goals (MDGs) states that “by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling”.

Upon achieving the goals of MDGs, which ended in 2015, the Sustainable Development Goals (SDGs) were developed. Compared to MDGs that consisted of 8 goals, SDGs were more extensive with 17 goals in three dimensions of sustainable development, namely social, economic, and environmental goals, which are being targeted to be achieved by 2030.



The fourth goal of the SDGs aims to “ensure inclusive and equitable quality education and promote lifelong learning opportunities for all”. Admittedly, achieving inclusive and equitable quality education for all will require a lot of efforts.



EDUCATION EQUALITY VERSUS EDUCATION EQUITY

Although education equality and education equity are seemingly related, nonetheless, there is a subtle difference between the two concepts.

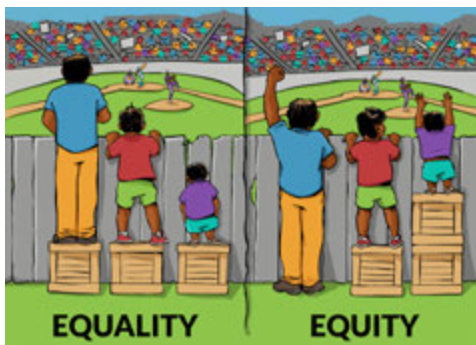
Education Equality

Equality is about sameness which promotes fairness and justice by giving everyone the same thing. But it can only work if everyone starts from the same place and needs the same assistance along the same path. However, not everyone starts at the same place due to different lifestyles, backgrounds, desires, and needs. For example, students who come from a low-income families will need more resources, e.g. funding, and academically weak students will need more time with their experienced teacher.



Education Equity

On the contrary, equity is about fairness; it is about making sure people get access to the same opportunities. Our differences can create barriers to obtain equality, so we must first ensure equity before we can enjoy equality. Equity tries to understand where people are coming from and give them what is needed to be successful. This means not giving everyone the same thing, but rather giving them what they need. Therefore, equity in education in the 21st century is more than just the availability of education. It is, therefore, important to recognize the fact that some students require more support than others to reach their academic potential (Volgelsang, 2018).



Source : Angus Maguire



DO WE CREATE INEQUALITY AND INEQUITY ?

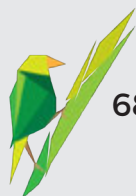
It is important to understand why equality and equity exist. Sameness and fairness are the concepts of social justice. The places in which children are born can have a huge impact on their development due to the differences in terms of the environment and society in which they live in, including the educational system that they are exposed to, which will shape their future. In our society, we always say that we plan for a better future. However, the irony is that the educational system that we have created and the support that we have given to the society have widened gap between the fortunate and unfortunate. In many developing countries, educational systems used tend to groom only a small percentage of talented students by giving them everything for the sake of at the expense of others.

Such a practice involves selecting the primary school and lower-secondary students with excellent grades and placing them in boarding schools where they can learn in a conducive environment with good facilities and experienced teachers. Most will be awarded scholarships until they have completed their tertiary education locally or abroad. Such a

practice seems inappropriate given that most of the talented students typically come from a better socio-economic background that makes them financially secure. As such, the gap between the rich and the poor keeps widening. Hence, a more equitable policy should be put in place to help reduce such a gap such that all students, irrespective of their socio-economic status, can gain equal access to quality education.

"Everybody is a genius. But if you judge a fish by its ability to climb a tree, it will live its whole life believing that it is stupid."

Albert Einstein



ISSUES AND CHALLENGES

1

Unequal opportunities

Issues regarding unequal opportunities have plagued not only developing countries but also developed nations. For example, in 2015, a study on funding inequity in the USA carried out by The Education Trust found that per-pupil revenues in high-poverty districts were \$2,200 less than those in low-poverty districts (Volgelsang, 2018), suggesting that unequal opportunities are a global issue that needs a concerted effort to overcome it.

2

Meritocracy and equal opportunity

Meritocracy is a social system in which people's success and status in life depend mainly on their talents, abilities, and efforts. The idea is that educational opportunities must only be distributed based on individual merit. In other words, people advance based on their merits. Through meritocracy, everyone has the same opportunity, where the educational system treats all people to be equal regardless of their gender, social class, ethnicity, and others.

3

Equality of resources

Resources involving funds, infrastructure, facilities, technologies, quality teachers, and others have to be made equally available to all students to ensure quality education. Otherwise, the overall quality of education will be compromised as some students will be forced to learn in a poor learning environment lacking all the essential ingredients to make learning meaningful and engaging. Thus, it is vital that students pursuing an education at the elementary, secondary, and tertiary levels be given the same educational resources to ensure no one will be left behind.

4

Globalisation and liberalisation in education.

The forces of globalization have significantly impacted the realms of education and communication. The impact of globalization has changed not only the way education is delivered but also the roles played by both teachers and students. Due to globalization, the industrial-based societies of many nations have been transformed into information-



based societies. However, such a transformation of the world societies has aggravated the gap between rich and poor nations, with the former becoming more affluent and the latter deeply entrenched in economic quagmires.



Differences in learning styles

In a diverse society, students have a diverse range of learning styles. For example, some students can be described as visual learners while others as auditory learners. In addition, some students can be viewed as tactile learners, given their preference for hands-on learning activities. As such, they process information differently depending on their learning styles. For example, teaching relying only on lectures will advantage auditory learners at the expense of visual and tactile learners. As such, teachers have to deploy a range of teaching methods to cater to the different learning styles of their students, the failure of which can be detrimental to student learning. Each student has different learning styles. Depending on their learning styles, these students process information differently. Thus, if the teacher only lectures, the auditory learners

will have the advantage while the visual and tactile learners will be at a disadvantage, which means the teacher has failed to promote fairness to these students.

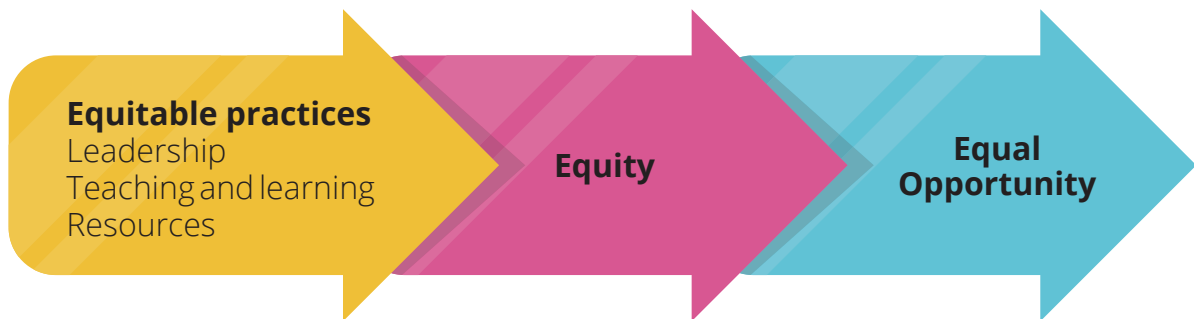


Inequity due to socioeconomic level

The socio-economic factor plays an important role in ensuring the success of students' academic endeavor. Children hailing from higher socioeconomic status (SES) have more learning opportunities than those from lower SES. In all probability, the former will be exposed to informal learning much earlier than the latter, as the former will have more reading materials (e.g., comic books or magazines) at an early age that helps develop their cognitive skills. Sadly, the latter will only have the chance to read books or other reading materials when they enter pre-school. Such inequity can continue to exist even at the secondary level of education. For example, children with parents of high SES can afford to have tutors and attend tuition class or preparatory class before they sit for any important exams. Such luxury is beyond the reach of ordinary children whose parents come from a low SES background.



STRATEGIES



To address such issues and challenges, a framework to promote equity and equal educational opportunities was proposed. Such a framework was conceptualized based on the notion that treating students equitably can help provide equal opportunity for all. As such, we

need to engage in equitable practices to provide equal opportunity for all students. Moreover, the proposed framework highlights that equitable and equal opportunities can be achieved through collective efforts by all the stakeholders via equitable practices in the following aspects:

LEADERSHIP

School leadership is vital in transforming a school. As such, experienced teachers with sound managerial skills should be appointed as headteachers or school principals of low-performing schools. Such an appointment can help such schools to improve their academic standing by capitalizing on the acuteness and keen insights of such head teachers or school principals, who will be able to steer their schools toward the right path for improvement. In addition, to attract and retain excellent leaders in these schools, the government should introduce policies that provide systematic support and incentives to school leaders who are willing to be placed at low-performing schools or in rural schools.





TEACHING AND LEARNING

Due to the differences in learning styles among students, ensuring that all students can learn successfully will be a huge undertaking. Arguably, such an endeavor may entail a total revamp of existing educational systems. In addition, teachers need to diversify their teaching methods by using a range of instructions in the classroom and by identifying students' learning styles. With proper teaching methods that match students' dominant learning styles, student learning can take place efficaciously to help them reach their full academic potential. Also, teachers need to recognize individual student's learning needs and change their teaching and assessment to fit those needs.

Clearly, now is time for us to question the wisdom of using the conventional method in administering the same test in the same format to a classroom of diverse students with different learning styles. Teachers should also create an accommodative atmosphere where committing mistakes or errors are neither criticized nor penalized. For example, when students fail a test or an exam, naturally they will feel embarrassed and become demotivated. Hence, teachers must counsel them on how to learn from mistakes and failures in addition to providing proper support to such students.



RESOURCES

- ▶ **Funding:** Equity in funding means that every student must have adequate resources to have the same chance to succeed. Unfortunately, in general, low-performing schools are provided with basic allocation based on student populations, which are typically higher than those of high-performing schools. To make matters worse, most students of the former are from families of low SES background. Thus, getting additional fund from the donations of such families is virtually impossible. By contrast, high-performing schools are provided with more funding, despite having smaller student populations. Such a practice needs to be replaced with a more equitable practice that is fair to all types of schools. Ideally, more funding should be allocated to low-performing schools to help elevate their academic performances to the same levels of those of high-performing schools.
- ▶ **Quality teachers:** Usually, most low-performing schools and schools in rural areas do not have an adequate number of high-quality teachers. Such inadequacy can harm the academic performance of such schools, which typically have a high percentage of students coming from poor families. In contrast, high-performing schools have a higher number of high-quality teachers compared to those of low-performing schools. Surely, such an imbalance will worsen the quality of education of the latter. Now, it is time to change what we have been doing for years. Our policies should focus on how to attract, support, and retain high-quality teachers at low-performing schools, especially in rural schools. The main reason for the poor performance of such schools is mainly attributed to the overall quality of their students, who are mainly poor (academically and economically), and to the shortage of well-qualified teachers. Teachers in these challenging schools often lack the experience and qualifications or even the desire to be there. They stay on only to gain experience or until there are opportunities available for them to seek a transfer to other better schools. Research has shown that high-quality teachers or teachers of high caliber can make a lot of difference. Thus, more efforts have to be put in place to encourage such teachers to teach in low-performing schools by rewarding them with more incentives.
- ▶ **Technology:** Technology is an integral part of educational development and innovation. For example, more students can be reached easily across the country, not just in a single classroom, by using online lessons powered by simple software. Furthermore, the availability of internet access with increasing speed can help reduce geographical obstacles, which have previously impeded student learning. With appropriate technologies, students can access online materials, discuss with their peers, seek counsel from tutors, take quizzes, and participate in a real-time video conference, among others. Advancement in technologies, especially in artificial intelligence (AI) and educational software, has enabled teachers to cater to the different learning needs of diverse student populations. However, it must be emphasized that the use of such technologies does not necessarily promote the equality of educational opportunities.



WHAT WE CAN DO

Admittedly, we have to accept that inequality will be inevitable due to a host of factors. As such, more efforts are entailed to mitigate such a predicament by focusing on the following aspects.



Educational policies: Let us give a stick to those who need it

Reducing inequality in education requires more transformative changes. Greater efforts are needed to invest more in the educational development of nations. It is important to empower and promote inclusivity to the school administration. We can ensure equal opportunities and reduce inequalities if we could eliminate discriminatory policies and practices to reduce the gap between urban and rural schools. Therefore, technological tools, and technical support should be given to schools lacking in school facilities and financial allocations.



Teachers training and human development

The quality of teachers depends much on the process of recruiting, hiring, and exit policies. Continuous training and development throughout one's service is also part of the important process to enhance teaching quality. There has been a hot debate between choosing the best 10 or 15 percent of best students to train them to become teachers and selecting those who have a genuine interest in the teaching profession. Striking a balance between the two approaches is probably a better strategy of choosing students to become teachers as the desire or

eagerness of becoming a teacher for some people comes later. Therefore, the selection of potential quality teachers is a daunting task for education planners. A challenge will also arise if the exit policies are very complicated. To sum up, teachers' recruitment, hiring, and exit policy in the teaching profession should be more localized and decentralized to overcome the constraints imposed by the current centralized policy.



Lower teachers turnover

Quality and experienced teachers should be reallocated to the under-performing schools, especially in remote areas where the turnover of teachers is high. Teachers (who are not the members of a local community) in a rural school usually tend to ask for a transfer to cities or other urbanized areas, leaving a vacuum that will be filled up by novice or inexperienced teachers. This cycle will be repeated due to the centralization of the recruitment process and to the hiring and placement process carried out by different agencies. Consequently, the number of experienced and highly qualified teachers in rural schools will remain low. Therefore, some form of incentives has to be made to encourage experienced and highly qualified teachers to teach in such schools.





4

Adoption policy to reduce the burden of public funding

In many developing countries, the allocation of funds for schools is an issue that has been plaguing the smooth running of schools. As such, strong partnerships need to be forged with private sectors to help the government to reduce its financial burden. The concept of 'one school one company' as part of a collaborative effort, which is not something new to corporate bodies, needs to be emphasized. With such a concept, relevant corporations can provide some form of financial assistance to schools that have less or insufficient funding. As a result, such schools will have enough fund to purchase new equipment, set up networking infrastructure or even provide free breakfast for poor students,

among others. This will surely improve the reputation of such schools as a place to provide an equitable education to all students.

5

Student-Teacher Ratio

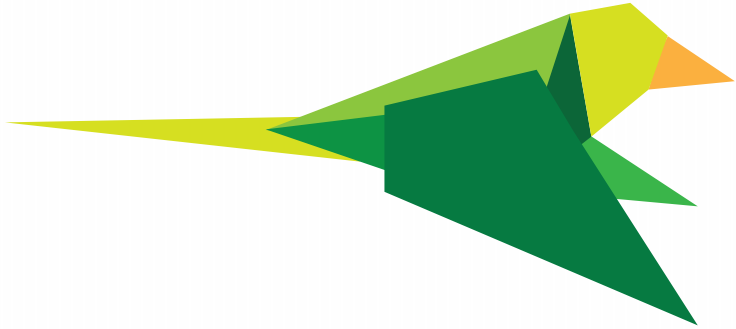
Available evidence shows that a small teacher-student ratio will enhance student performance. The policies for reducing such a ratio include small-sized schools with one teaching and learning session. Interestingly, some developed countries are beginning to use team teaching in the classroom, in which two or three teachers will be involved in a single teaching and learning session. Admittedly, the aim of having a small teacher-student ratio will incur a high financial cost, but in the long-term, such an aim can help produce quality students.

SUMMARY

Attaining universal primary education is one of the important goals of nations to make them economically vibrant, politically stable, and socially harmonious. Clearly, without basic education, meeting other goals, such as hunger alleviation, poverty eradication, health improvement, and environmental sustainability, will be difficult to achieve. Hence, the goal of providing basic education to everyone has been

the main agenda of all nations. In particular, education equality needs to be addressed with extreme care, and efforts to reduce inequality in education must be carried out in earnest. In this regard, all educational institutions, such as schools, colleges, and universities, must take the bold step in providing students with equal opportunities to quality education.





RESEARCH IN EDUCATION

07



INTRODUCTION

To address the challenges of teaching and learning in this highly competitive millennium, educational research needs to focus on the innovation of four niche areas, namely curriculum, teaching and learning, assessment, and educational products. This section highlights the development of an educational research ecosystem among CAPEU members that aims to initiate research activities and foster collaboration

among academia, industries, societies, and countries of CAPEU members. Through such collaboration, important research findings can be shared by all concerned to help improve the current practices of providing education to the masses by focusing on technological, logistical, managerial, administrative, and evaluative aspects of education.

STRATEGIES

a

Focus: Educational research should focus on curriculum, teaching and learning, student assessment, and educational products. As such, CAPEU members need to strategise by focusing their time, effort, and money on selected areas of educational research. The findings of such research can help guide the stakeholders to take the necessary measures to improve existing policies and practices concerning curricula, teaching and learning methods, student assessment, and educational products.

b

Catalyst: Funding Mechanism. To date, many governments, educational institutions, corporations, and organisations provide funds to their local researchers only. Lately, many bodies have started to provide funds for science-based research and sustainable development research, which are related to one of the Sustainable Development Goals (SDG) advocated by UNESCO. However, securing such funds will be extremely difficult given that the requirements of such research are usually stringent. In view of this difficulty, CAPEU members



can create a funding mechanism where each institution allocates a certain amount of funds to enable researchers to work collaboratively on educational research projects, which can have significant practical values that can help improve existing policies and practices. In particular, the implementation of exchange grants between several countries would also be an effective way of collaborating on high-impact educational research. Another source of funding is 'matching grants', entailing the collaboration between at least two entities or organisations. Hence, CAPEU members are encouraged to collaborate in researching any educational topics of interest.



Support: Provisions for research, such as research labs, technologies, knowledge transfer, infrastructure partnership, and monitoring mechanism, have to be carefully planned. A useful starting point, would be to undertake a mapping exercise to highlight of currently available educational research infrastructure, expertise, networks, researchers, and interests. This exercise would enable CAPEU members to develop a sustainable approach that supports and enhances research capability, networks, and infrastructure and to avoid unnecessary investments for short-term gains. In addition, a systematic analysis of research findings can provide evidence to support critical decision-making and to add rigor to the research process. In essence, such educational research can help identify key issues, distill what is known already, and identify gaps in research. Also, it can serve as a practical means to engage researchers with a broader section of communities, including teachers and parents.



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CASES



Thailand

- Bhurapa University: Studies carried out are primarily concerned with the development of teaching and learning models and teachers' training programmes. Also, the university has a keen interest in research on the assessment on their own bachelor's degree and graduates' programmes.
- Mahasarakham University: The research focus of Mahasarakham University is on brain-based instructions, early childhood educational technology, and the use of educational technology and computer.

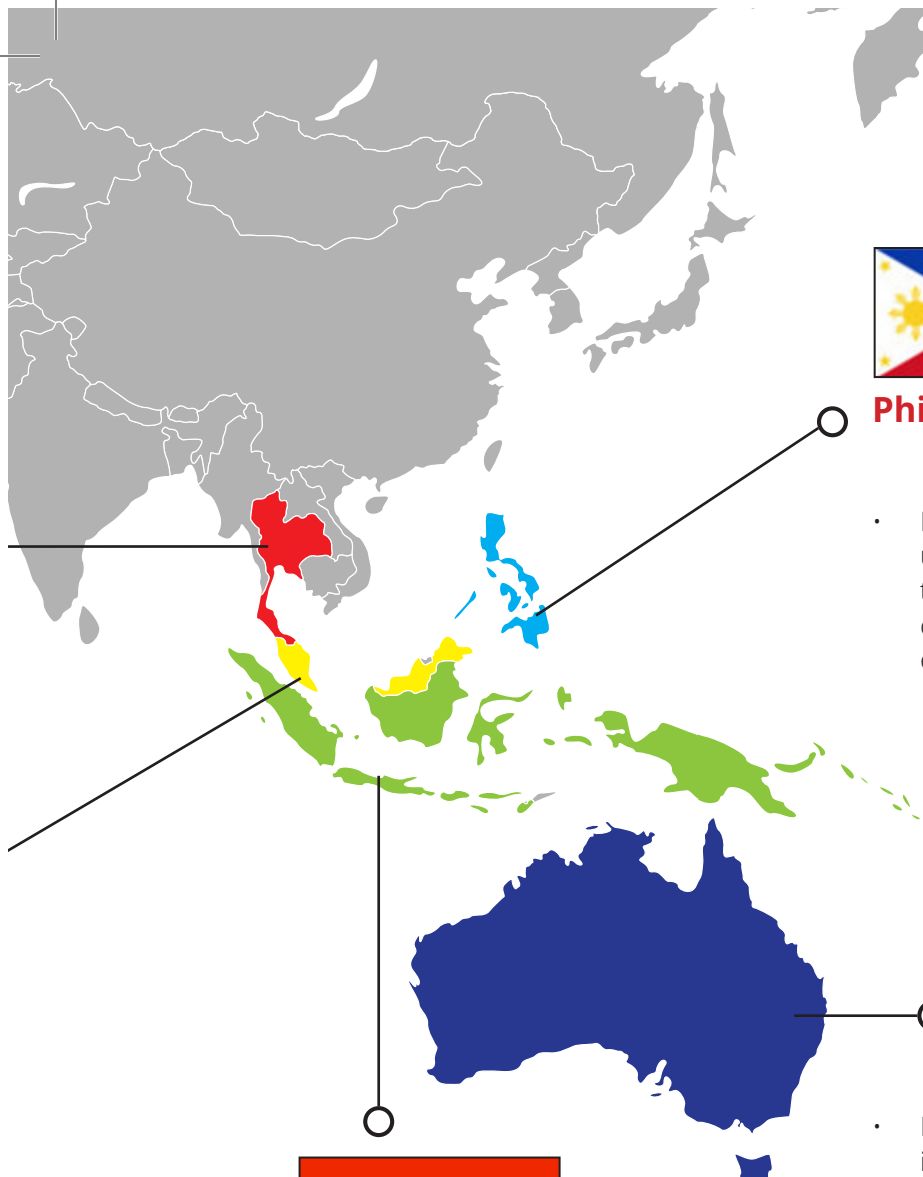


Malaysia

- UPSI's main research involves the development of a Teacher Education Model that focuses on developing sound curriculum, teaching and learning, student assessment, teacher leadership, clinical experiences, and induction guiding

principles and frameworks. In addition, UPSI has conducted a study that centers on the development of a framework to help guide the design of effective Professional Development programs for teachers.



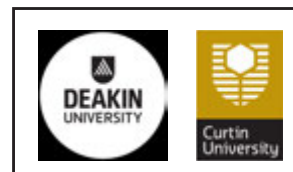


Philippines

- Besides teaching and learning, several universities in the Philippines have devoted their research to investigating the future classroom by concentrating on integrated educational technology.



Australia



- Deakin University: The focus of research is on teaching and learning (play-based approaches, literacy, and numeracy pedagogical), quality curriculum, students' achievements, and capabilities.
- Curtin University: The research carried out centers on pedagogical practices to enhance teachers' knowledge using multiple representations and, interactive and multimodal pedagogies in teaching science subjects. Another interest is on equality and human-rights education.



Indonesia

- Most of the studies that have been carried out among CAPEU members in Indonesia concentrate on early childhood teaching and learning, problem-based learning, and blended-learning teaching models.



SUGGESTIONS



To use emerging, new educational research methodologies, such as translational, trans-generational, longitudinal, and participatory research.

To align strategic planning initiatives among CAPEU members.

To develop a research management system to facilitate the management of funding, the evaluation of research proposals, and the monitoring of research progress.

To generate research funds for CAPEU researchers.



To establish a secretariat for commercialisation of research products and innovations.

To formulate rules and regulations for research, funding, and commercialisation.

To promote infrastructure, expertise, technology, and funding partnerships.

To support career advancement for outstanding researchers and students.



SUMMARY

This section elaborates the four critical areas of educational research and innovation, namely, curriculum, teaching and learning, student assessment, and educational products. In this section, it is argued that the development of an educational research ecosystem is essential to enhancing the collaboration of research among CAPEU members by initiating research activities involving a wide spectrum of parties, notably the academia, industry, society, and CAPEU member countries.





A WAY FORWARD

Realizing that many issues and challenges will lie ahead in our effort to transform and reform our educational systems, especially in the Asia Pacific region, we have no other options but to move forward with a strong focus on improving existing educational systems. As such, each member of CAPEU should embrace the idea that educational transformation and reform are necessary to help us provide quality education to our citizens.

In this book, seven aspects that serve as guidelines for the CAPEU members in transforming and reforming the educational system are discussed by focusing on the potential problems and issues that will emerge from such an undertaking and the best strategies to help overcome them. Insights into the understanding of how best to deal with the potential challenges in carrying out educational transformation were synthesized from the inputs, ideas, and feedback gathered from numerous discussion sessions and workshops held by the CAPEU members.

All relevant information documented in this book can be used as a guideline or a reference. Each member of CAPEU can refer to such a guideline to decide which aspects of the educational system that need to be reformed. In pursuing a particular course of action, all members of CAPEU can help one another by sharing their expertise and experiences, which is in line with the team spirit of this consortium. We hope that this book will be the precursor of the publication of other books or materials to help enrich our knowledge and strengthen our understanding of issues and problems arising from the continually evolving educational landscape that we have to deal with.

To all CAPEU members, let us consolidate our strengths to achieve our ultimate goal: **QUALITY EDUCATION FOR ALL.**



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