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An Integrated Curriculum Design for Preschool Education in Malaysia: A Conceptual Paper

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Abstract

A sustainable and strategic curriculum is an important educational standard for a child's development. The substantial purpose of this study was to explore the various pedagogical principles and learning models preschool education are currently constructed on at the global perspective and subsequently propose an ideal conceptual framework for an integrated curriculum. Based on the comparative analysis done by researchers, this concept paper draws out the potential key areas of S.T.E.A.M, Finnish pedagogy and High Scope approach and explains in-depth the use of each model and the expected outcomes for teachers and on children's growth and development in the context of Early Childhood Education (ECE) in Malaysia.

Keywords: Integrated Curriculum Design, Preschool Education, S.T.E.A.M, Finnish Pedagogy, High Scope, Approach

Introduction

The importance of preschool education and the pedagogical principles on which learning models it should be constructed on is becoming an essential characteristic of today's early years education system decisions. Cobanoglu and Sevim (2019) points out that early childhood education development is the basis of a child's future since children's academic success as well as social and emotional competencies depend on it (Montessori, 2019).

Every learning approach in most early years' education centres is somewhat construed to certain principles of learning models and even though none of these individual models may be a perfect fit for all children, they nonetheless are widely used around the world as blueprints, either on their own or integrated between a few learning approaches and models to better serve young children's growth and development (Morisson, 2015; 2021).

With the above in view, the main purpose of this comparative analysis was to conceptualise an integrated curriculum design for preschool education in Malaysia. Basically, this study was designed with a two-fold objective in mind.

1. First, it anticipated to understand the learning approaches and models that are currently being used around the globe.

2. Consequently, the study intended to devise a conceptual framework that early childhood centres in Malaysia can model on.

The conceptual framework formulated will be further discussed below together with the key elements of this research- *factors that influenced the design, approaches used to integrate the curriculum and expected outcomes for teachers and children's growth and development.*

Methodology

It is imperative in any curriculum design that evaluation of the end outcome of a model is thought first prior formulating any conceptual framework that reflects a successful curriculum integration model. For this concept paper, the researchers first read through the literature and amalgamated their prior knowledge on the various types of learning models and approaches. Approaches such as Montessori, Waldorf, HeadStart, HighScope, S.T.E.M, S.T.E.A.M., S.T.R.E.A.M., Finnish Pedagogy, Reggio Emilia, Japanese 'Whole Person Education' Preschool Pedagogy, PERMATA National curriculum, National Preschool Curriculum Standard (NPCS) and Malaysian Education Blueprint 2013-2025 were studied carefully. Then, the researchers devised the factors that should be considered for a curriculum-integration model in Malaysia. Using these factors, the researchers then selected the most suitable approaches to learning and model pedagogies from the various countries to formulate a conceptual framework. Finally, the researchers studied the conceptual framework with depth to explore the expected outcomes of the integrated curriculum design on teachers as well as on children's growth and development.

Discussion

Factors that Influenced the Design

The discussion on factors that influenced the design was largely based on the Convention on the Rights of the Child (CRC) 1989, Child Act 2001, Education Act 1996 (Laws of Malaysia, 2006), Early Childhood Care and Development Policy (ECCD) 2007, Act 308 Childcare Centres, alongside all the models, pedagogy and approaches mentioned in 2.0 above. Ten factors as stated below were highlighted before suitable approaches and pedagogies were selected to form the conceptual framework for an integrated curriculum

- i. *Respect for the child's needs and rights* was set as the foundation and the cornerstone of this integrated curriculum;
- ii. Rich learning structure that includes *well-prepared and positive environment* to encourage active participation of children;
- iii. *Interactive and child-friendly learning facilities and materials* to accommodate cultural diversity and differently abled children;
- iv. *Teacher-student collaboration* where a close relationship, emotional stability, secured, comfortable and supportive partnership is generated between teacher and children. It is neither teacher-centred nor student centred;
- v. *Parental Engagement* that fosters learning both at home and school and supports parents' involvement on a regular basis regarding their child's development;
- vi. *Explorative pedagogy* where a unique and critical process is in-place for children to *explore, decide and solve problems*;
- vii. *Structured daily routines* that provide regular schedule to follow that is consistent and where children from *diverse backgrounds* can predict and build sense of *security and confidence*;

- viii. *Social interactions* that encourage peer group-work and peer-play that supports and gently extends children's knowledge and understanding of social equality;
- ix. *Interactive and innovative teaching and learning* that accommodates children's needs for the 21st century that includes logical thinking, technology-enabled learning, creative expressions, language acquisition, science and math, and various other knowledge areas being incorporated through an interdisciplinary, thematic and enquiry learning;
- x. *Observation* that regularly monitors the *National Key Development Indexes (KDIs)* to help develop further interventions to accomplish the needs for every child's appropriate development and growth and preparedness for formal schooling and life-long learning.

Approaches used to Integrate the Curriculum

Based on the ten factors above, the researcher then analysed and selected three learning approaches or pedagogies that was suitable to create a 21st century integrated curriculum whilst maintaining the essential Key Development Indexes (KDIs) outlined in the Malaysia's National Education Policy, as well as acts and policies under the Laws of Malaysia.

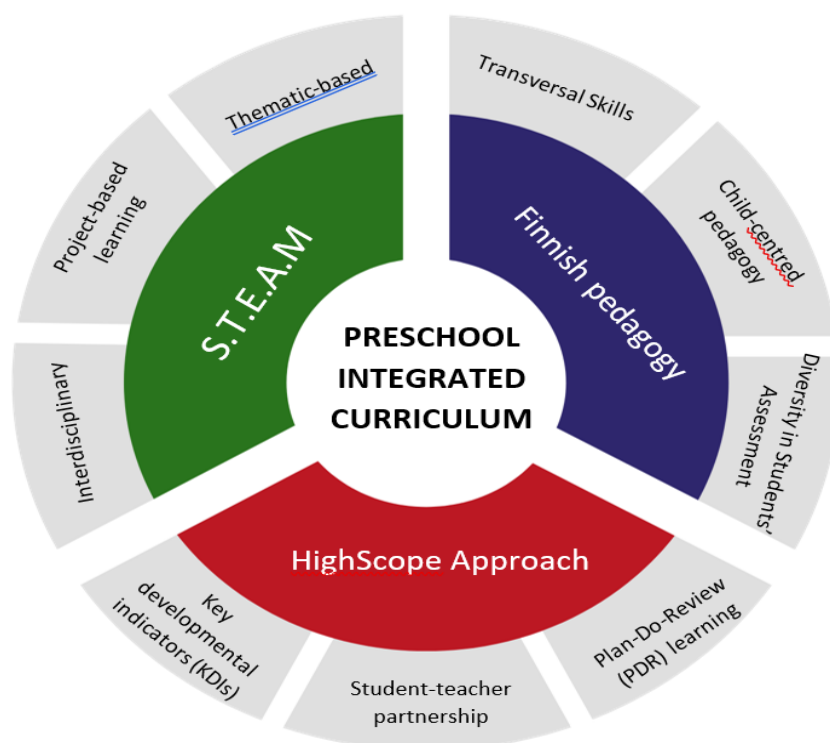
A key criterion in the forming of this conceptual framework was the phrase 'sustainability'. Sustainable Development Goals (UNITED NATIONS, 2015) has highlighted Target 4.2 that indicates by year 2030, all early years children should have high quality early childhood education and care in order to prepare them to enter primary schools successfully (UNITED NATIONS, 2015; UNESCO, 2022).

With the Global Partnership Strategy launched recently by UNESCO for early childhood 2021-2030 driven by the 2030 Agenda for Sustainable Development (UNITED NATIONS, 2015; UNESCO, 2022), the team formulated a tri-dimensional integrated curriculum that encompass S.T.E.A.M. learning model, HighScope approach as well as Finnish pedagogy, as illustrated and discussed further in 3.2.1 below.

Preschool Integrated-Curriculum's Conceptual Framework

As stated earlier in the introduction, many of today's 21st century educational requirement will find individual models or approaches to be an imperfect fit for children in the coming generations, and hence an integrated model that looks at all **three areas- the traditional aspects of growth and development that lies within the constructivism theories such as Piaget and Vygotsky; innovative approaches that includes hybrid technology, Massive Open and Online Learning (MOOC) and explorative studies related to problem-based learning;** as well as *inclusive education for children based on CRC 1989 and 2030 Agenda for Sustainable Development (UNICEF, 2012, UNITED NATIONS, 2015)* was achieved through the collaboration between S.T.E.A.M approach, HighScope approach and Finnish pedagogy (Illustration 1).

Illustration 1
Conceptual Design for an Integrated Curriculum



Each approach or pedagogy selected contributed specific key areas (as illustrated in the grey boxes in the conceptual framework) and was found essential for this integrated curriculum.

Science, Technology, Engineering, Arts and Math (S.T.E.A.M.)

Science, Technology, Engineering, Arts and Math (S.T.E.A.M.) is an educational approach that was designed in the 21st century as a way to close the gaps of United States industries' lack of experts in sciences, technology, engineering and math (STEAM Education, 2015). From the initial S.T.E.M., Arts 'A' was added to encourage students to develop creative thinking, critique, and evaluation (Lathan, 2022).

S.T.E.A.M. is an educational discipline that tries to spark children's interest in the arts and sciences and instill a lifetime love of them from an early age. S.T.E.A.M. equips educators to use project-based learning that spans all five disciplines (*science, technology, engineering, arts, math*) and provides an inclusive learning environment where all types of students, with various ability levels can participate and interact. In today's environment, preparing students for future success entails providing them with a comprehensive exposure to different disciplines in order to help them develop critical thinking abilities. Traditional teaching and standardized evaluation cannot meet the needs of teachers and students of the 21st century, hence introducing S.T.E.A.M. as a form of a pedagogical perspective for ECE integrated curriculum design is highly suitable (Sullivan & Bers, 2016).

Of the many principles outlined in the S.T.E.A.M. approach, this research team took into consideration the element of inter-disciplinary instructions, thematic-based directions, and project-based learning as part of the curriculum integration design.

Today's education stresses the necessity of *interdisciplinary learning*, which S.T.E.A.M. approach promotes in its learning. Interdisciplinary learning includes learning and teaching that focuses on a specific topic rather than a specific subject, emphasizing the application of science, technology, engineering, art, or mathematics, as well as other connected

information, as a wholesome experience to solve real-world challenges (Lathan, 2022). Interdisciplinary learning not only allows learners to gain a better comprehension of a single discipline, but it also increases their capacity to apply multidisciplinary information thoroughly. It teaches children to observe a situation from various perspectives to attain deep understanding before solving the situation at hand, which is parallel to NPC's six pillars of education, respectively science and technology, physical development, aesthetics, spiritual and moral values, children's attitudes, human-centred principles, and self and community associations.

Following interdisciplinary learning, is the principle of thematic-based directions. Thematic-based directions encourages the learning of various areas of syllabus connected within a topic/theme. Educators usually design a theme in-unison with teaching objectives, children's attributes and abilities, and instructional content before assigning children to small-groups for exploratory activities. Theme-based learning promotes the engagement of interdisciplinary disciplines as such children get the opportunity to be active participants as they connect ideas from different sources, recognizes the relationship between-disciplinary, uses language and expression for real practical purposes and develops autonomy and affiliation with other peers and learn various problem-solving styles (Saraswathi & Stanly, 2018).

A third principle of S.T.E.A.M. approach considered was the problem-based Learning (PBL). The idea of PBL entirely fall on a student-centred approach in developing children's cognitive, emotional, and social abilities, as well as 21st-century life skills. Children get to define their learning objective, perform self-directed enquiry before applying required knowledge and skills following the inter-disciplinary aspects to solve a problem. In addition, as stated by Kimberly, Alissa and Irene (2019), children's motivation for commitment and their engagement will considerably boost as they become little scientist solving real-world issues, practical for today's survival.

Finnish Pedagogy

Finnish National Core Curriculum implants the Finnish pedagogy in early childhood education and care where it comprises education, teaching and care. The Finnish pedagogy went through a curriculum reform in 2016 when Finnish National Agency of Education formed new key goals that emphasized increased students' participation, enhanced meaningfulness of education as well as effective academic and social-emotional development. Today, Finnish education approach is seen as the most successful education system and there are certain reasons for this. Basically, the key idea of the Finnish education is not on testing and scorings rather it believes children should be the centre of the education where they set goals, find solutions to problems, and assess their achievement based on the target set. In other words, students are expected to take an active role in designing their own learning activities.

Of the six principles outlined in the Finnish pedagogy (Muuri, 2018), this research team took into consideration transversal skills, child-centred pedagogy, and diversity in students' assessment as part of the curriculum integration design.

In today's new society, *transversal skills* are extremely important. Transversal skills refer to understanding how to learn, forming communication and self-expression as well as instilling cultural and global diversity competence. This is parallel to our Malaysian Education Blueprint 2013-2025 (Ministry of Education, 2012;2013). The focus of transversal skills is being able to cross over what they have learned into practicality, meaning to manage their daily life, including being able to immerse in active skills such as technology, entrepreneurship, as well

as establishing sustainable environments that children will need for life-long living (Muuri,2018; UNESCO, 2022).

Another aspect of Finnish pedagogy taken into the design of the integrated curriculum was child-centred pedagogy. The basic idea here is ‘taking the whole child into consideration’ (Arola, 2020; Finland International Education, 2019). This means that learning should be empowered to children with teacher being a facilitator, every child’s differences should be taken in account when designing lessons, extending support to help students in terms of nutrition and/or sleep deprivation, and understanding each child’s learning strategies and coping needs. The principle of the ‘prepared environment’ was included in every aspect of the design. As we know, children learn best in an environment that has been designed to allow them to accomplish things for themselves hence for this model we ensured that the integrated curriculum followed a learning environment will be child-centered, allowing children to investigate items of their choosing and teachers to prepare the learning environment by providing resources and experiences to children in a systematic and self-contained manner to promote active learning.

Lastly, the Finnish principle on diversity in students’ assessment was as well considered because as we know, today we have children from diverse backgrounds, abilities and learning requirements. The ‘one test fits all’ strategy is not a good measure anymore although many of the formal schooling in Malaysia still do exercise this. Diversity in assessments and methods will ensure every child be given equal opportunity to develop and assessment results discussed with parents and students themselves will see that efforts are aligned to improve the child rather than the punitive high-stake testing that only disheartens children’s self-effort for further growth and development (Muuri, 2018).With the diverse student assessments records, teachers can be able to form parent-teacher partnerships to draw out plans or interventions in ensuring the child gets a holistic nurturing both from school and home.

High Scope Approach

The High Scope educational approach is established on best practices of the National Association for Education of Young Children (NAEYC) as well as the Head Start programme’s performance guidelines. The eight main domains of High Scope that is parallel to Malayisan NPCS further encouraged the research team to select this approach for the design of an integrated curriculum.

Parallel to S.T.E.A.M. and the Finnish pedagogy, High Scope also focuses on children-centred teaching and learning where activities and lesson plannings are based on the principle that children must be actively engaged in selecting, organizing, and evaluating learning activities or in other words, the child must be an ‘active learner’. The team took into the fact that adults are partners on children’s activities rather than supervisors or guides, meaning it is a *student-teacher partnership*. The teacher is an equal active partner in the learning process as children and every activity is to be carried out under the supervision and guidance of a teacher in a learning environment with a diverse range of materials located in several classroom learning centres (Morisson, 2021).

Another feature of High Scope taken into the design of this integrated-curriculum was the Plan-Do-Review (PDR) instructions. PDR is an extremely student-centred engagement time unique in High Scope that encourages children to perform a three-part sequence- small group time to discuss with peers and teacher on what they plan do; then children conduct explorative and PBL enquiries to find the solution before they get together again to review their findings to a larger group of children. In between the Plan-Do-Review (PDR) instructions,

children are given transition times for play, eating and resting (Macgolerick, 2013; Morison, 2021) which are essential rights of child based on the UN CRC 1989 (UNICEF, 2012).

Finally, the content area which encapsulates the 58 Key Development Indicators (KDIs) of the High Scope approach was parallelly analysed through a comparative study with Malaysian NPCS 2017 and Education Act 1996 (amended in 2001). The KDIs were matched to the domains and statements of perceptible behaviours that define the important learning areas for young children were established in the designing of this integrated-curriculum – *approaches to learning and rights of student; social, emotional and physical development; health and mental well-being; literacy, language, and communication; mathematics and logical thinking; creative arts and expressions; science and technology; as well as humanistic and social involvement.*

Expected Outcomes of an Integrated Curriculum

Based on the conceptual framework above, below are the expected outcomes of an integrated curriculum for both, the teachers, and the early years learners. Lake (1994) states that the integrated curriculum is a perfect pedagogy for experienced teachers with extensive experiences, knowledge, and skills. Teacher becomes a learner with the students, rather than the expert or know-it-all, parallel to the High Scope teacher-student partnership principle. Process of learning is as important as the content and the objectives. Children are given the opportunity to explore and express themselves and a freedom to plan and make decision throughout the learning process (PDR in High Scope) and teachers are responsible in making sure a prepared child-centred environment and pedagogic establishment (Finnish pedagogy) is created to produce optimum child development success that integrates curriculum of the 21st century (S.T.E.A.M.).

Expected Outcomes for Teachers

- i. Teachers will be able to develop a sense of respect for children and enhance their choices, encourage initiative, enforce independence, and cultivate creativity (Finnish pedagogy/High Scope approach).
- ii. Teachers will be able to provide a unique and critical process that will emphasize the 'plan-do-review' (PDR) for children to explore, which will allow the children to decide and solve problems (High Scope approach).
- iii. Teachers become active in the learning process as children, by practicing a mutual give-and-take relationship in which both groups participate as leaders and followers, speakers, and listeners (High Scope approach).
- iv. Teachers will be competent to select the areas and activities to use in the classroom based on the interests and capabilities of the children (Finnish pedagogy, High Scope, S.T.E.A.M approach).
- v. Teachers will become more sensitive to the diversity of the children in the classroom including their culture, language, developmental levels, and special needs (High Scope, Finnish pedagogy).
- vi. Teachers will be able to set up the environment and plan activities to encourage learning and social interaction among children (Finnish pedagogy, High Scope, S.T.E.A.M approach).
- vii. Teachers will be able to take into consideration children's ability-levels in designing the learning environment as well as assessment strategies (Finnish pedagogy, High Scope, S.T.E.A.M approach).

- viii. Teachers will be able to support children's active learning by providing a variety of materials, making plans, and reviewing activities with children (High Scope, Finnish pedagogy).
- ix. Teachers will be able to share platforms where they interact with children by sharing control with them and focusing on their strengths, forming genuine relationships with them, supporting their play ideas, and helping them resolve conflicts (S.T.E.A.M approach, High Scope, Finnish pedagogy)
- x. Teacher will be able to engage students in a borderless environment using multiple digital tools to encourage interactive and innovative learning that accommodates children's needs for the 21st century such as logical reasoning, creative thinking, etc (S.T.E.A.M approach)
- xi. Teachers will be able to provide real-life experiences where children can apply transversal skills in learning through doing (Finnish pedagogy)
- xii. Teachers will be able to use the Child Observation Records (CORs) to record objective anecdotal notes about each child's behaviour in every key area of development and periodically use the score from the COR to monitor individual and group progress as well as create interventions (High Scope, Finnish pedagogy).
- xiii. Teachers will also be able to communicate with parents on each child's development progress based on Key Development Indexes (KDIs) through the COR and discuss strategies to work in partnerships with parents and students (High Scope).

Expected Outcomes for Early Years Learners

- i. Children will learn to respect the rights of the group and the other individuals as well as rights of self in the environment (Finnish pedagogy, High Scope).
- ii. Children will gain higher knowledge level through active involvement with people, materials, environment, events, and ideas (Finnish pedagogy, High Scope).
- iii. Children will learn to plan many of their own activities, carry them out, and communicate with others through peer-peer and student-teacher partnerships about what they have done and what they have learned (High Scope, Finnish pedagogy).
- iv. Children will obtain knowledge and skills in important academic, social, emotional, and physical areas through active participation, social interaction and cross discipline learning (S.T.E.A.M approach, High Scope, Finnish pedagogy).
- v. Children will learn to discover successful social and emotional skills to resolve interpersonal conflicts and promote decision making through problem-solving skills (High Scope).
- vi. Children will become independent, responsible, and confident individuals throughout their learning process that practices transversal skills (Finnish pedagogy, High Scope).
- vii. Children will become life-long problem solvers, more resilient in tackling problems on their own or together in group and learn to see obstacles in a different and various perspectives (S.T.E.A.M approach, High Scope, Finnish pedagogy).
- viii. Children will be able to learn on their own capabilities without fear of being judged and pressure from peers and authorities. Concepts such as the Plan-Do-Review approach and Project-based Learning that involves children extreme participation and involvement from making plans, finding decisions, and reviewing solutions as independent learners will encourage students of all kinds of background to the rights of education (Finnish pedagogy, High Scope).

- ix. Children will become knowledgeable, creative and critical individuals that are able to view matters across disciplines (inter-disciplinary) whilst promoting higher-level thinking order (S.T.E.A.M approach).
- x. Through diverse observation records, children will be able to get better guidance and appropriate intervention to accomplish the Key Development Indexes (KDIs) for preschoolers. (Finnish pedagogy).
- xi. Children will be able to apply transversal skills to enhance their real-life learning experiences by being able to cross over what they have learned into practicality, meaning to manage their daily life, including being able to immerse in active skills such as technology, entrepreneurship, as well as establishing sustainable environments (Finnish pedagogy).
- xii. Students will be able to upgrade their skills and knowledge based on the Child Observation Records (CORs) in every key area of development and periodically use the score from the COR to work in partnership with their parents and teachers (High Scope).
- xiii. Children will be able to engage in a borderless environment using multiple digital tools to interact, expand knowledge in an innovative and creative way based on their own needs for the 21st century (S.T.E.A.M.)
- xiv. Children will nurture a sense of community and citizenship through the various disciplines and areas of the KDIs inter-twinned into the curriculum that focuses on building life-long learners and independent global citizens (S.T.E.A.M approach, High Scope, Finnish pedagogy).

Conclusion

Every learning approach in most early years' education centres is somewhat construed to certain principles of learning models either applied on their own like Montessori education or Head Start programme or integrated between a few learning approaches like the one proposed in this comparative study. The whole purpose of this concept paper was to introduce to preschools a more holistic approach through the integration of some 21st century models- High Scope, S.T.E.A.M. and Finnish pedagogy, to better serve young children's growth and development. An integrated preschool curriculum that has inter-twinned appropriate learning models/approaches will enhance students learning without boundaries, fear, and restrictions, achieve optimum and holistic early development key indexes based on abilities, and ensure no child is left behind in achieving a high-quality early childhood education. The researcher hopes that with the current Global Partnership Strategy launched recently by UNESCO for early childhood 2021-2030 (UNITED NATIONS, 2015; UNESCO, 2022), this research finding on the development of an integrated curriculum model will be adopted by preschools in Malaysia as it provides a sustainable educational system for the 21st century young learners.

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