INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN PROGRESSIVE EDUCATION & DEVELOPMENT

OPEN ACCESS JOURNAL

Vol 13, Issue 2, (2024) E-ISSN: 2226-6348

Using Vygotsky's Theory to Understand Kindergarten Learning in Malaysia: A Critical Appraisal from Meta-Analysis

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To Link this Article: http://dx.doi.org/10.6007/IJARPED/v13-i2/21232 DOI:10.6007/IJARPED/v13-i2/21232

Published Online: 16 April 2024

Abstract

Research indicates that the best way for children to learn in school and kindergarten is through active engagement with the problem-solving task at hand. In this systematic review we investigate what strategies have been shown to facilitate learning in kindergartens in Malaysia. We locate the paper theoretically in the pedagogical framework outlined by Vygotsky (1978), where effective teaching is mediated by a more competent other in a unique social space opened in dialogical interactions between teacher and taught in the process of development. The analysis is carried out by a systematic review process utilizing the Web of Science database using the PRISMA method. In addition, to see the positive impact of this strategy on children's development, a meta-analysis method was implemented through thematic mapping statistics utilizing ATLAS.ti software. Findings indicate there are nine strategies that can be utilized as a reference for kindergarten educators in implementing quality learning. This paper outlines these strategies.

Keywords: 21st Century Learning, Kindergarten, Preschool, Scaffolding

Introduction

There is increasing evidence that children can learn science from younger ages than was previously thought (Fleer, 2020; Morris et al., 2016). While work in the early 20th century pointed to the fact that children had to be at certain developmental stages before they could learn, the current evidence suggests that children can learn science even in kindergarten (Winkler-Rhoades et al., 2013; Haynes and Murris, 2012; Fleer, 2010; Ginsberg and Golbeck, 2004; Egan, 2002). The understanding that children can learn science earlier than previously thought informs Malaysia's approach to Early Childhood Education (ECE). The Malaysian National Education Philosophy for ECE strives to develop children's potential from all developmental dimensions including physical, emotional, spiritual, intellectual, and social development (Education Act, 1996). This philosophy emerged because of the historical revolution and ongoing reform of the education system in Malaysia, spanning from the era of British colonialism to the present day (Rosli et al., 2022). The objective is for educational

institutions to incorporate all facets pertaining to education in accordance with this philosophical framework. In the Malaysian Education Development Plan 2013-2025, the Ministry of Education of Malaysia or MoE (2013) emphasized that early childhood education, including preschool, and kindergarten needs to be strengthened through 3 main waves as follows:

1. The first wave, which spanned from 2013 to 2015, focused on accelerating improvements in program implementation techniques as a means of strengthening the structure of the program. The emphasis during the implementation phase was on ways to raise the standards of teaching by enhancing the competence of current educators, elevating the calibre of school leadership, and raising the rates of literacy in Malay, English, and numeracy.
2. The second wave, which extends from 2016 to 2020, highlights the introduction of a new curriculum to address concerns about knowledge, skills, and values to advance in line with the current global economic development.
3. The third wave, which has been taking place from 2021 to 2025, will promote a move toward excellence with more operational freedom. To be eligible for this wave, all schools, educators, and principals/headmasters must perform above basic requirements at the outset.

Despite the development of different curricula, initiatives taken by the government, and teaching methods tailored to children's needs, age, and abilities to support their cognitive (language development and problem-solving skills), physical (development of gross and fine motor skills), and social-emotional (interaction with others) development (Rahmatullah et al., 2023), numerous pedagogical issues persist (Qin & Nor, 2018; Taipoi & Osman, 2023). The implementation of these three waves poses significant challenges for educators, particularly in the current post-Covid-19 learning context (Hasin et al., 2022). The evaluation of science and mathematics education, often known as STEM or STREAM, within the early childhood education system in Malaysia reveals several significant concerns that serve as impediments to enhancing the overall quality of education (Phang et al., 2023). Ompok and Bacotang (2019) conducted a study which found that children's proficiency in STEM topics, such as Mathematics and Science, remains inadequate. Furthermore, Khusnidar et al (2020) indicates that educators' expertise, particularly their proficiency in pedagogical methodology pertaining to STEM, is a contributing factor to their inadequate readiness to educate in the classroom. This assertion is substantiated by the research conducted by Abdul Halim (2023), which suggests that educators' limited proficiency in fundamental teaching skills in Mathematics constitutes a contributing factor to the absence of an active learning environment during the initial stages. According to Kadir and Jamaludin (2022), it is recommended that educators engage in a professional development program to enhance their pedagogical preparedness and facilitate the attainment of high-quality education for students. What we can see then from the Malaysian context is a policy context that aims to develop STEM in younger children that is hampered by pedagogical methods that do not meet the needs of children together with teachers' lack of content knowledge in these subjects. Ultimately, what this leads to is underperformance in STEM subjects that begins even before formal schooling. Without a firm foundation to learn STEM subjects in school, we can expect that students will struggle to perform at the requisite level.

Further challenges in teaching and learning identified in Malaysia relate to a lack of pedagogical skills and difficulties in locating teaching reference materials (Kamarudin et al., 2023). Additionally, there is a need to address the issue of module content for children so that what they are learning has direct relevance to their lived experiences and is not taught as

merely an abstract idea (Abu, 2023). This study reveals that many of the modules prioritize learning through memorization, with limited emphasis on mediating strategies. While Hoque (2018) asserts that rote learning offers various advantages to children, such as enhancing memory retention, stimulating cognitive processes, and teaching repetitive patterns, Dicarlo (2009) argues that genuine and high-quality learning can only be achieved when educators assist children in becoming active, self-reliant learners and problem solvers, rather than solely emphasizing memorization. Certainly, there is a need for rote learning of facts such as the times table in mathematics, but when concepts are taught, one needs to develop meaning, and this cannot be achieved through rote. According to Ekwueme et al (2015), the most effective method to ensure that children acquire a concept is to use constructivism as a theoretical underpinning of teaching and learning. We outline a theoretical framework below that can be conceived of as located in a constructivist frame as it views children as active cognizing agents who co-construct meaning through social interaction.

Mupa and Chinooneka (2015) revealed that one of the factors that leads to ineffective learning within schools is due to a reliance on instructional materials that are limited to textbooks and curricula that focus on facts, without going beyond these basic explications. This is not unique to Malaysia. We have reported on textbook analysis before, where the analysis illustrated that the textbook contained mainly concrete facts rather than elaborated, abstract concepts, especially in science (Author, 2, 2023). Unfortunately, when children are compelled to acquire knowledge through texts that are narrowly fact based, it is unlikely that they acquire concepts but rather, a body of knowledge that is seen as set and unchallengeable (Shah, 2019). This is in complete opposition to what science is; science is a way of coming to know that relies on creativity, collaboration, experimentation, and falsification (Hardman, 2022). Faced with a factually based text that requires no investigation or questioning, children are expected to accept the facts in the textbook without challenge, again, this is contra what science is as a discipline (Stofflett, 1998). The challenges in the Malaysian ECE context, which are not unique to this context, provoke a question about what good pedagogy is for children and, more specifically, how a student can acquire the types of cognitive skills required for engaging in and with science. This is what the current paper seeks to answer.

Theoretical Framework

In this paper we conceive of teaching and learning as dialectically entailed; that is, one cannot have teaching without learning, nor can one have learning without teaching. This is contra the traditional view of pedagogy based on a binary assumption that learning follows teaching; in this view, teaching and learning are two sides of one coin. This understanding of pedagogy derives from the work of Vygotsky (1978/1986) who illustrated that higher cognitive functions, those uniquely human functions that are developed as the child grows, are mediated by culturally more competent others. Mediation refers to the process of structured guidance in a unique social space opened between students and teacher that Vygotsky terms the Zone of Proximal Development (ZPD). It is within this space that the teacher, working with the student, constructs meaning through the problem-solving activity. While Vygotsky indicated that mediation is the mechanism for cognitive development, he gave few indications of what mediation could look like in a class. Questions, guidance, and structuring of tasks are some of the mechanisms he suggested could assist in mediation. In the West, however, the work of Wood et al (1976) developed the notion of scaffolding as a mechanism that could potentially function as steps in mediation. While scaffolding is task dependent,

mediation refers to the process of mediation that unfolds over time. An example illustrates this learning that the letter "a" makes a certain phonetic sound can be done using discrete tasks which can be scaffolded by the teacher sounding out the letter or getting students to sound it out. Reading for meaning, however, is a developmental process that must be mediated over time and takes around three years for children to master. In this paper we take mediation in the ZPD as a pedagogical method that leads to the development of higher cognitive functions. In the 21st century, these functions are what we would term executive functions, that develop through the child's interactions with their socio-cultural milieu. It is within the ZPD that the more competent other guides the student to understand abstract, scientific concepts.

Vygotsky distinguishes between scientific, abstract concepts and every day, spontaneous concepts. While scientific concepts are necessarily taught and cannot be acquired empirically, everyday concepts are related to the child's lived experience, are concrete and context dependent. It is important to note that the use of the word 'scientific' does not refer to science concepts alone; rather, for Vygotsky, all abstract concepts are scientific concepts. Democracy for example, is an abstract concept that needs to be taught. It is a mistake though, to think that one concept is more important than the other; abstract concepts can only be understood meaningfully when they are interpenetrated with everyday concepts. Similarly, the everyday concept remains outside of conscious awareness without the scientific concept. These concepts, then, are dialectically entailed. Effective teaching that leads to cognitive development then requires both types of concepts be interwoven in the developmental process (Hedegaard, 2020).

To summarize the pedagogical model, we draw from Vygotsky: good teaching involves the presence of a culturally more competent other (the teacher) who works with a child in a social context in which a ZPD is opened between teacher and taught in such a way that abstract concepts are interpenetrated with everyday concepts and meaning is co-constructed in dialogical interaction.

Understanding teaching/learning in Early Childhood Education Context

This paper situates itself within ECE and therefore, draw on what it means to be a child in this age range. Kindergarten or preschool children are defined as those between the ages of three and six (Smolak & Levine, 2001). Piaget, possibly the most famous educational psychologist of the last century, indicated that children in this age group are pre-operational in their thinking. What this means is that a child in this developmental stage is pre-logical and egocentric in thinking. Here egocentrism relates to the child's inability to see the world from the perspective of the other. This is not to suggest the child is egotistical, but rather, that the child is able to centre on only one aspect of a situation at any one time. In his famous conservation experiments, Piaget (1976) illustrated that children in the pre-operational stage were unable to conserve identity across transformations due to centration, or the tendency to focus on a single aspect of a situation to the exclusion of all others. While Piaget's work offers some interesting insights into child development, his stage theory does not allow for development that is provoked by a more competent other. For him, it is equilibration that is the motor of development. Conversely, Vygotsky (1978) indicates that children not only can but do learn from those around them and the motor of development lies in the expertise of

a culturally more competent other. The driving force behind development is situated inside the social domain, as opposed to the individual as postulated by Piaget.

Vygotsky viewed the pre-school child as someone who is motivated to learn during play (Bodrovo and Leong, 2015). During the kindergarten years, a child's play is the primary activity that drives their development. While the exploratory activities of play in the kindergarten setting implemented, a process known as scaffolding can be set up by a teacher to provide task specific assistance that can be a mechanism for development over time through mediation. It is here that the teacher may use scaffolding in relation to specific play tasks to guide the child's actions. While this is not developmental on its own, it can be seen as a first step in mediating development. Drawing on Wood et al (1976) scaffolding can be conceived of as a task specific framework that the teacher sets up to guide the child's actions. Just like scaffolding in building is used to help build a house, for example, so too can scaffolding of actions help a child to identify certain aspects of an action they are engaged in. Scaffolds can be gradually reduced as the child gains competence. In relation to play, we can think of a child doing a puzzle with the teacher scaffolding their engagement by picking up certain pieces and getting the child to identify where the piece may fit in relation to what is already completed on the puzzle. Scaffolded play is directed by children but supervised by the educator (Wasik & Jacobi-Vessels, 2017). The educator who engages children in scaffolded play initiates motivation in the child to learn (Hirsh-Pasek et al., 2009). Vygotsky did not stipulate the strategies that could be used to mediate within the ZPD, but engagement with Wodd et al (1976) indicates that their notion of task specific scaffolding may be one useful mechanism, among others, for working within a child's ZPD. Other mechanisms are questions and the use of a dialogical approach to teaching that favours a co-construction of meaning in the class. The potential of scaffolding to act as a mechanism for task specific problems underpins this paper. As noted earlier, scaffolding and mediation are not synonymous; the former relates to task specific actions while the latter relates to development. However, we argue that scaffolding can serve as a mediation mechanism in the ZPD in relation to discrete tasks. Figure 1 presents a diagrammatic representation of mediation in the ZPD. It is only through guided assistance that the child begins to develop.

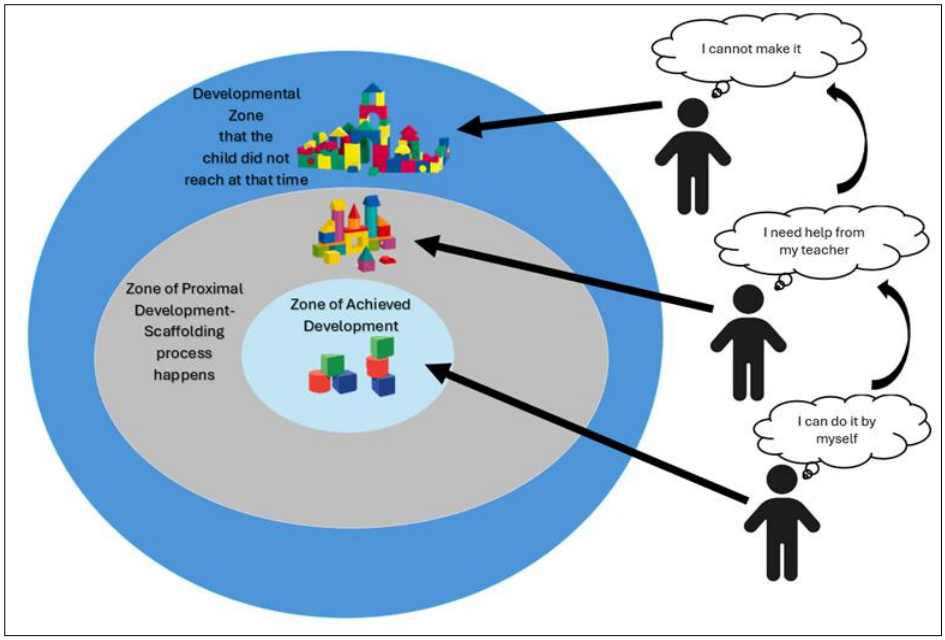

Figure 1. *Mediation in Kindergarten*

Figure 1 demonstrates that a child's development can be conceived of through three different circumstances when they are in their learning zone (Christmas et al., 2013). In the first circumstance, a child can complete the task of creating a simple structure with blocks without the assistance of anybody because they know how to achieve this task. No learning happens here as the child already knows how to engage with the task. In the second circumstance, a child can create a sophisticated structure, but he needs assistance from the educator because this is beyond what s/he can achieve within his current developmental level. A more expert other is required to guide the child's actions. Finally, the child can work on their own and that ZPD is closed, and another will open when they are again faced with novel knowledge. Given the work discussed above, we have carried out a meta-analysis to answer the following question:

1. What are the most effective scaffolding strategies that kindergarten and early childhood education educators in Malaysia may employ to aid children's learning?

Methodology

To answer the main research question in this present analysis, the researchers used the meta-analysis method. This is a rigorous, quantitative epidemiological study design to methodically evaluate the findings of earlier studies to draw conclusions about that body of work (Haidich, 2010). We utilize a single database to study best practices from previous research findings regarding the Web of Science database. We use this database primarily as a dataset for significant data-intensive studies, as well as a research tool to support a wide range of scientific tasks across many knowledge areas (Li et al., 2018). To achieve a systematic analysis, we employed the Prisma Flow Diagram, as recommended by previous scholars (Kvarven et al., 2020; Wu et al., 2018). we employed various inclusion and exclusion criteria to ascertain the suitability of selected publications in relation to the research issue. Table 1.0 presents the criteria established by researchers for the purpose of screening and selecting relevant publications.

Table 1
Inclusion and Exclusion Criteria

Criteria	Inclusion	Exclusion
Type of Research	Empirical Studies	Review Studies
Types of Publication	Article Journal	Review Paper, Conference Paper, Book, Book Chapter, Grey Paper
Year of Publication	2019-2023	2018 and below
Accessibility	Open-Access	Non-Open Access
Main Keywords	Scaffolding AND Kindergarten	Non-Random Keywords

After the criteria for inclusion and exclusion were selected, the subsequent phase involved conducting a systematic analysis of the articles, as depicted in Figure 2. Following a systematic process of selecting papers that pertain to the study subject. Nine papers meeting our needs were identified. Each of these studies exhibits distinct gaps in comparison to one another. This paper will address the aforementioned shortcomings within the context of research findings.

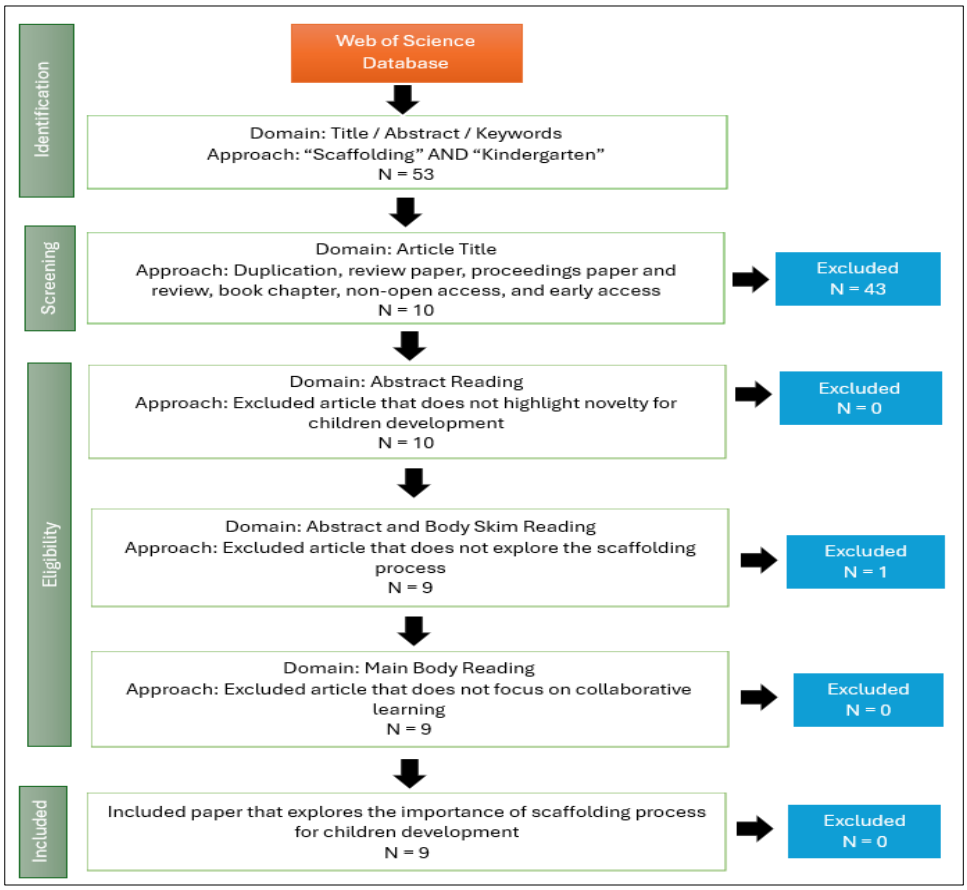

Figure 2. *A Completed PRISMA Flow Diagram from A Published Meta-Analysis*

After these nine publications have been successfully recorded, documented, and reported, we used ATLAS.ti software to perform statistical analyses and combine results from multiple similar probes. In the present analysis, we examine the gaps for each study using thematic content analysis through a mapping process Soratto et al (2020) in order to synthesize the significances of the best strategies highlighted from each publication. As a result, it can be a

benchmark for Malaysian kindergarten educators to refer and implement in order to improve the quality of LFP based on the suggested activities by all nine publications.

Results and Discussion

To ensure the provision of high-quality and supportive learning environments in kindergartens, preschools, and early childhood education facilities in Malaysia, it is imperative for educators to use comprehensive methods by effectively and constructively implementing learning activities inside or outside of the classroom. Based on the analysis of 9 articles, educators in Malaysia can identify various references that warrant attention, as presented in Table 2.

Table 2

Scaffolding Strategies that Can Be Applied by Malaysian Kindergarten Educators

Code / Author(s) / Year	Title	Journal	Research Focus	Recommended Activity for Malaysian Kindergarten Educators
A1: Albuquerque and Martins (2021)	Invented spelling activities in kindergarten: the role of instructional scaffolding and collaborative learning	International Journal of Early Years Education	Literacy Ability	The incorporation of dialogical learning approach is crucial in the development of spelling-based activities, as they took into account children's verbal and written inputs and aimed to enhance their literacy abilities and comprehension of the alphabetic principle.
A2: Sysoev et al., (2022)	Child-driven, machine-guided: Automatic scaffolding of constructionist-inspired early literacy play	Computers & Education	Literacy Ability	Promote the acquisition of early reading skills by implementing an innovative and child-centered approach, wherein learners are provided with automated scaffolding to assist them in attaining their own objectives. This strategy could be done by enabling expressive flexibility for the leaners, ideally allowing for open-ended choice of words to spell.
	Differential efficacy of digital scaffolding of numeracy skills in			The introduction of digital intervention can enhance

A3: Merkelbach et al., (2022)	kindergartners with mild perinatal aversities	Frontiers in Education	Numeracy Ability	children's numeracy development through spatial skills. However, educators must also provide scaffolding such as repetition, structure, guidance, and adaptive feedback to promote positive development.
A4: Schodde et al., (2020)	Adapt, explain, engage-a study on how social robots can scaffold second-language learning of children	ACM Transactions on Human-Robot Interaction	Literacy Ability	The incorporation of robots into education is an excellent move toward increasing children's ability to socialize and gain knowledge. Educators are encouraged to use an adapt-and-explain scaffolding strategy through agency of robot to promote transparency and understanding during the interaction, hence increasing children's motivation and learning gains.
A5: Deshmukh et al., (2022)	Educators' use of scaffolds within conversations during shared book reading	Language, Speech, and Hearing Services in Schools	Literacy Ability	Most educators' scaffolds matched the accuracy of children's responses, providing support after incorrect responses and greater challenge after corrected ones. During shared reading, educators respond to children's responses and can offer challenge or help as needed. It is recommended that educators also need to emphasize scaffolding through causal consequences, predictions, and recasts in reading activities.
				Educator responding containing content-specific language has

A6: Studhalter et al., (2021)	Early science learning: The effects of teacher talk	Learning and Instruction	STEM Education	been proven to be a favourable predictor of children's conceptual understanding. This finding implies that simply exposing children to a restricted selection of content-specific vocabulary can help them learn domain-specific concepts.
A7: Weber et al., (2022)	Fostering children's block building self-concepts and stability knowledge through construction play	Journal of Applied Developmental Psychology	STEM Education	The most effective strategy that educators may employ is to introduce children to learning aids such as blocks. However, researchers have recommended that activities be performed through a directed play strategy rather than allowing children to play on their own, since this may be useful in nurturing children's block developing self-concepts and stable knowledge.
A8: Lizacic and Susic (2020)	Contribution of children's self-organised musical activities to the lifelong learning of preschool teachers	Croatian Journal of Education	Musical Expression	The engaged involvement of children in the planning and execution of musical activities, and adequate and inconspicuous reinforcement from educators can have impact on the frequency with which children engage in self-organized creative and musical activities during the educational process. Researchers also suggested that educators' primary role should be to interpret the creative musical activities

				(show and do) that are implemented, rather than to scaffold the process only through the educator's encouragement and observation.
A9: de Groot et al., (2023)	Development and preliminary validation of a questionnaire to measure parental support for drawing	Thinking Skills and Creativity	Creative Learning	In addition to educator assistance in kindergarten, researchers suggested that one of the good ways for encouraging children's interest in art and creativity is the involvement of parents. Furthermore, educators' understanding of the progress of drawing behaviour in children at home should allow educators and parents to adjust art education programs that are under-emphasized in the school curriculum.

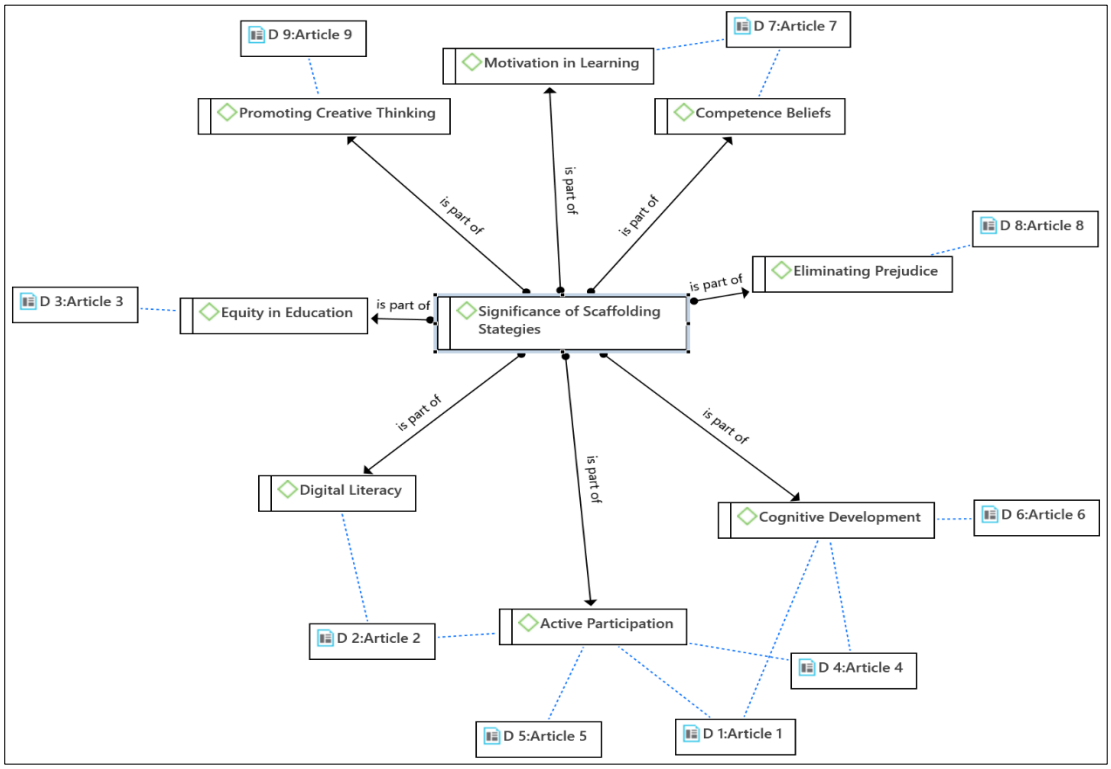

Figure 3. *The Significance of Scaffolding Strategies*

Based on the findings derived from the study conducted on a sample of nine publications, it is evident that educators employ various ways to facilitate the constructive exploration of children's holistic development. For instance, in the case of publication A1, empirical evidence has demonstrated that the utilization of a dialogical learning strategy can effectively enhance children's literacy skills. This is corroborated by the results of a study conducted by Morgan and Meier (2008), in which they recommend that educators employ dialogic reading as a means of instructing children in reading. This approach has the potential to assist children in preventing subsequent reading difficulties and the adverse consequences linked to inappropriate conduct. Consequently, children have the capacity to exhibit active engagement and enhance their cognitive abilities in a constructive manner. This resonates with Vygotskian ideas that mediation happens primarily through language and within dialogical settings that open the ZPD. Furthermore, by incorporating child-centred approaches within activities under the supervision of educators, A2 publication indicates the children's spelling abilities can be enhanced. By prioritizing children's potential and abilities, learning can effectively enable them to achieve their maximum capabilities in any given endeavour (Nicholas et al., 2021). Consequently, children can cultivate self-confidence through their active engagement in various activities and their profound enthusiasm for digital play activities facilitated by educators. Again, focusing on the child as an active cognising agent resonates with the Vygotskian theory.

Publication A3 has emphasized the efficacy of digital activities to enhance children's numeracy skills. Sakurai and Goos (2023) argue that educators must employ instructional strategies that leverage real-world digital resources in realistic manners to enhance the meaningfulness of numeracy tasks conducted digitally. This too echoes the work of Vygotsky in the fact that abstraction must be linked to a child's authentic, lived experiences. Furthermore, the A4 publication's findings demonstrate that the utilization of robots in education has effectively enhanced children's literacy skills. Interestingly, a study conducted by Rohlfing et al (2022) have showed that through the employment of robotics programs in the classroom, the progression of learning activities that vary from active, constructive, toward interactive with the latter supporting deeper learning of children. As a result, children can actively participate in activities and increase the development of creative thinking through the role of the robot. The ability then, of technology or online applications to motivate students is useful in learning as motivation is the first step in any learning cycle. It is important to note however, that technology on its own does not impact on learning, rather it is the kind of pedagogy that underpins the technology that leads to acquisition. Research indicates that a constructivist type pedagogy is best suited to underpin technology use for learning gains (Hardman, 2019; Tammim et.al).

Publication A5 found that direct response to children's errors can improve children's reading ability. That is, immediate feedback is a useful strategy in learning. Interestingly, Meyer (1986) proposed five processes for educators to address their students' errors consisting of promoting modelling strategies, leading by doing, testing children's ability, retesting children's capability, and promoting mastery units. Providing explanations for why an answer is right or wrong also helps a child to understand their problem-solving in relation to tasks (Mercer, 2015). A5's content has stressed leading strategies that can assist children in actively participating in the educator-led reading activities. Publication A6 demonstrated that content-specific language (CSL) can improve children's mastery of STEM instruction. This too

can be seen in a Vygotskian light as he notes that scientific concepts, that is abstract concepts, must necessarily be taught.

Publication A7 reveals that the use of physical learning aids, such as building blocks, might assist children develop an interest in STEM activities. If we look at this finding through a Vygotskian lens, we can make sense of this as blocks are used to play, and play is the leading activity of kindergarten. According to Koralek (2015), blocks help children learn to take turns and share materials, form new connections, become self-sufficient, improve their attention span, cooperate with others, and boost their self-esteem. As a result, the findings of the publication A7 have demonstrated that children have a strong desire to learn and demonstrate competent beliefs through their actions. A finding from A8 relates to educator modelling as a strategy to enable students to engage with tasks. This resonates with Wood et al.'s (1976) notion of scaffolding, where a model is presented for imitation.

Publication A9 reveals that parental engagement can assist educators in developing children's drawing abilities. Through drawing activities, educators may foster creative thinking of children with the help of educators and parents. By establishing cooperative relationships between the school and families, parents become aware of their children's school conditions and their rights as parents to join forces with others who share their experience (Delgado-Gaitan, 1991). Parents should have confidence in the ability of professionals working with their children (Đurišić & Bunijevac, 2017), ensuring transparent and fidelity in their child's development. Yet again, this resonates with the Vygotskian notion that higher cognitive functions are developed through social interaction.

Proposed Indicators of Good Teaching

The analysis highlighted various teaching strategies that are effective in developing understanding in children. In table 3 below, we outline indicators for pedagogical practices in class, which have been shown to lead to development. By gaining a deeper understanding of these indicators, educators can enhance their ability to teach children effectively. The latter, in turn, it boosts educators' motivation to engage in activities that have a significant impact on children's development and their comprehension of various learning concepts.

Table 3
Effective teaching strategies

Indicator	
Child Focused/ Teacher Mediated	**Play:** -Learn concepts through play; work must go beyond what the child can do on their own; focus on opening ZPD by introducing work beyond what the child can accomplish alone.
	Interactive: Pedagogy must be dialogical; encouraging the child to ask questions and discuss responses; co-construction of meaning
	Scaffolded tasks: Model solutions of problems; create a structure for problem-solving; prompt and guide actions
	Motivation: Provide extrinsic motivation through guidance and praise; spark intrinsic motivation through using materials that are of interest to the child; use of novel technology/gaming for motivation
	Feedback: Explicit; elaborated
	Authentic tasks: Relate to the child's everyday context; abstraction must be able to be transferred across contexts.

Conclusion

Academic researchers from multiple fields in Malaysia have explored the issues that kindergarten educators confront. As a result of a systematic literature review conducted through high-impact prior research, this paper demonstrates that educators can apply a variety of strategies to ensure that children's learning matches the requirements of 21st century education. We have argued, and the findings have illustrated, that a form of pedagogy that allows for a focus on the student, mediated interaction through play in the ZPD and the use of various interactive strategies to promote co-construction of meaning is the type of pedagogy that should underpin learning in Malaysian kindergartens. Our contention is that the use of the strategies outlined above provide a framework for teachers to follow to develop students' cognitively.

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