

Exploring the Efficacy of the Reggio Emilia Approach as a Transformative Learning Strategy to Enhance Preschool Children's Cognitive Development and its Challenges

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ABSTRACT

Malaysian preschools often prioritise teacher-centered rote learning focusing on outcomes, although cognitive development among children should be the priority at the preschool level. Moreover, RE-based research is commonly applied in the Western context. Hence, this study aimed to explore the RE approach in terms of its efficacy and the possible challenges of implementing this approach in a Malaysian preschool case study. This study employed a qualitative case study design and the data was collected using semi-structured interviews and non-participant classroom observations, indicating a triangulation qualitative approach. Purposive sampling was used for sample selection in this study. The sample consists of one RE-inspired center, one principal, one teacher (atelierista), and eleven children aged 18 months to four years in Johor Bahru. The findings showed that RE approach has improved the cognitive development of preschoolers as child-centered learning, project-based activities, and teachers as facilitators provided a dynamic learning environment. The results also showed that the key factors that influence the feasible implementation of the RE approach were the RE curriculum, the RE materials and environment, the relationship between atelierista (teacher) and children, social interaction, and parents' perceptions and collaboration. The findings showed the realistic challenges faced by the preschool setting while implementing the RE approach. . This study sheds light on the implementation of the RE approach in non-Western contexts, emphasizes the importance of applying context-sensitive inquiry-based pedagogy strategies in Malaysian early childhood education.

Keywords: Reggio Emilia approach; Cognitive development; Critical thinking; Preschool children; Qualitative case study

INTRODUCTION

Children need their early years to receive essential educational support which enables them to develop their thinking abilities, their social skills, and emotional maturity. The Malaysian preschool education system focuses on teaching children reading and math skills but this approach fails to support their complete mental development. The RE approach provides students with a child-centered learning system which lets them discover things through active exploration to achieve better understanding. The research investigates how well the RE approach works to improve preschool children's cognitive development in Malaysian educational settings.

Problem Statement

In Malaysia, preschool education has established early literacy and numeracy learning as its primary focus because these skills prepare children for their primary school education and fulfill national educational

requirements. The focus on basic academic skills has led to teachers using traditional teaching methods which include teacher-led instruction, rote memorisation, and excessive use of worksheet assignments in their preschool classrooms (Fern & Jiar, 2014; Hisham & Ying, 2025). The current educational methods fail to provide children with sufficient chances to develop their higher-order thinking abilities which includes critical thinking, creative problem-solving, apart from emotional self-control. Preschool children often find it difficult to learn alone nor through collaborative learning with their peers, lack the ability of self-expression of their thoughts, and lack emotional regulation especially during learning activities (Dong et al., 2023; Korucu et al., 2022; Rahim et al., 2023).

Moreover, lack of cognitive development during the early childhood period can cause long-term negative effects in terms of social competence, academic achievement, and overall well-being among the preschool children (Black et al., 2025; Wang et al., 2025). For instance, research conducted by Black et al. (2025) and Wang et al. (2025) has found that when children fail to develop their thinking abilities during their early first few years, they will face challenges in their learning journeys which can negatively impact the children's abilities of communicating with others effectively, their general health status, which could indirectly affect the school success.

Despite research showing child-centered and experiential learning approaches should be incorporated in preschool children's learning, it is difficult to implement them as teachers lack sufficient training, face overload of administrative work, the need to follow strict curriculum guidelines, and fulfilling differential expectations from parents about their students' education in Malaysia (Abdullah & Osman, 2010; Shafie et al., 2021; Sharim et al., 2023; Yean & Ngadni, 2024). The current obstacles require us to investigate how well the RE approach resolves cognitive development problems which Malaysian preschool children face while we determine its ability to fit national educational rules and actual teaching environments.

Research Gap

The research field contains very few studies which investigate how Malaysian preschool institutions apply the RE approach in their educational practices. The majority of research about the RE approach takes place in Western countries which include Europe and North America and Australia because these regions maintain educational systems that differ from Malaysia's approach that emphasises more on assessment-oriented and literacy-focused learning (Hisham & Ying, 2025; Radzi et al., 2023; Yean & Ngadni, 2024; Yee et al., 2022). The core principles of the RE approach including emergent curriculum, the environment as the third teacher, collaborative learning, and pedagogical documentation still lack sufficient empirical evidence as they are under-studied in Malaysia (Govindarajoo et al., 2023; Kong, K., 2022).

The existing research body has dedicated most of its attention to understanding the theoretical strengths and teaching principles of the RE approach through its philosophical base and developmental potential and core values but the actual constraints which preschool educators and operators encounter during its implementation are yet to be explored (Aljabreen, 2020; Chen & Rahman, 2024; Chen & Rahman, 2025; Heckman et al., 2018). The research field lacks studies which investigate both children's mental growth and the obstacles that arise when applying the RE approach in cultural environments which differ from Western traditions. Apart from that, there is a lack of sufficient data about how teachers and preschool center operators perceive staff readiness, institutional support, parental collaboration, curriculum alignment, and cultural adaptability (Chen & Rahman, 2024; Chen & Rahman, 2025; Heckman et al., 2018; Nguyen et al., 2025).

The field lacks research which investigates specific educational contexts to create practical solutions that prevent Malaysian early childhood education professionals from obtaining evidence-based knowledge which blocks their ability to create professional development programs and develop educational policies.

Research Questions

RQ 1: How do we know if the RE approach is effective in enhancing preschool children's cognitive

development, particularly in fostering curiosity, creativity, problem-solving skills, language ability, and social interaction?

RQ 2: What are the key factors that influence the feasible implementation of the RE approach?

RQ 3 : What are the realistic challenges faced by the preschool setting while implementing the RE approach?

LITERATURE REVIEW

RE as a Child-Centred Pedagogical Tool

The RE Approach is widely recognised as a child-centred educational philosophy that originated in the Italian city of Reggio Emilia (Arsevan, 2014). This teaching method has a more play-based approach in comparison to traditional teaching approaches. The core elements of this approach are, the usage of different ways by children to express themselves using various media and symbolic systems, environment as a third teacher, long-term projects related to children's interest, teacher as a facilitator, pedagogical documentation, negotiated learning, social relations, and the image of child where they are perceived to be competent, curious, and active constructors of knowledge (Manera, 2022). RE approach revolves around children's inquiry, dialogue, and how they interact with one another and their surrounding environment (Manera, 2022).

One of the key features of the RE approach is the use of an emergent curriculum, in which learning experiences take place as a reaction to children's interests instead of structured academic goals. The learning setting is intentionally designed to act as the "third teacher", providing spatial arrangements and open-ended learning materials that encourages exploration, questioning, and meaning-making. Documentation plays a prominent role in education that facilitates teachers to remember how children learn. It allows teachers and students to reflect on their experiences, picture how they think, and ask more questions over time. This approach emphasises the significance of seeing learning as a dynamic process, not just a simple collection of static information. Such methodologies encourage continuous engagement in learning, aligning with the research work done by Inan (2021) and Manera (2022).

The RE approach provides emphasis on the educator roles in comparison to the teacher-directed pre-school models which gives importance to immediate academic results and direct instruction. The RE approach identifies educators as facilitators and co-learners that can help children to improve their thinking skills by using various strategies such as asking questions, observation, and responsive scaffolding. It sees them as facilitators and co-learners who help children think better by using strategies such as active observation, asking questions, and responsive scaffolding. This pedagogical model provides high emphasis on teachers' ability to make informed decisions professionally and comprehend situations. In the scope of the study, the RE approach is identified as a pedagogical tool that is effective and capable of creating conducive learning environments that can cultivate critical thinking. The prominence of this approach is not just in ensuring specific cognitive outcomes are achieved but also in creating environments and interactions that encourage young children in early childhood education to ask questions, think critically, and reflect.

Theoretical Foundations for Cognitive Development in Preschool

In preschool education, constructivist and sociocultural theoretical viewpoints are used to evaluate the cognitive development of children. This is because they identify learning as an active process of constructing meaning and not just acquiring passive knowledge. According to the constructivist perspective, Piaget's idea states that children develop cognitive structures by interacting with their environment continuously through two processes such as assimilation and accommodation (Siregar, 2025). Piaget also suggests that learning takes place when children can actively explore, test their ideas, and face cognitive challenges that encourages the reorganisation of existing understanding and knowledge in their schemata (Cade, 2023; Felicia, 2025; Pakpahan & Saragih, 2022; Zhou, 2024). Piaget believes that in order for

children to develop early critical thinking skills, it is imperative that children are given opportunities to experiment, investigate, and carry out problem-solving.

Piaget's perspective is supported by the sociocultural theory which enforces the fundamental social nature of cognitive development. Vygotsky emphasises the role of language, interaction, and mediation in supporting higher-order thinking and the idea of the Zone of Proximal Development (ZPD) demonstrates how guided participation and collaborative problem-solving with the guidance from other individuals that are more knowledgeable can improve children's cognitive capabilities (Arda Tuncdemir, 2025). In addition, children are also supported through dialogue and shared activity allowing them to progress beyond independent academic performance and towards more complex forms of reasoning that requires higher order thinking skills like critical thinking.

Based on both constructivist and sociocultural theories, learning environments that prioritise inquiry, reflection, and meaningful social interaction will allow the cultivation of critical thinking in early childhood. Educators should not rely on rote memorisation and pre-determined learning outcomes alone as it could affect children's cognitive development and as emphasised by these theories, importance should be given for exploration, dialogue, and scaffolding as they are vital conditions for the development of children's emerging cognitive and critical thinking abilities.

RE and the Development of Critical Thinking in Early Childhood

Based on previous research conducted, it has been identified that RE-inspired pedagogical practices could possibly support the development of critical thinking in early childhood by emphasising inquiry, dialogue, and reflective learning processes. RE environments encourage children to investigate ideas, pose questions, and engage in sustained exploration instead of treating knowledge as fixed content that needs to be transmitted. This shows that there is a close alignment between the implementation of the RE approach and critical thinking when children are able to reason, interpret their ideas, and could judge the situations reflectively.

Classroom-based qualitative studies have indicated how children's inquisitive thoughts develop while involving them in the project work and collaboration with their peers within RE contexts (İnan, 2021; Manera, 2022). When educators engage the children using open-ended tasks and materials, this step will encourage children to generate hypotheses, test ideas, and revise their understanding over time constantly based on the new information that they learn. By communicating with peers and educators through dialogue, children will be supported in articulating their thinking, considering alternative perspectives, and negotiating meaning. Hence, these interactions will contribute to the development of higher-order cognitive processes that goes beyond surface-level learning.

Another fundamental practice that will encourage critical thinking is through documentation. This is because it allows children's learning processes and their progress to be visible providing both the educators and parents opportunities to be able to reflect on the children's learning to identify rooms for improvement. Besides that, when children revisit their documented experiences, they will be able to reflect on prior ideas, deepen understanding, and engage in metacognitive thinking (İnan, 2021; Manera, 2022). Once the learning gaps among children have been identified, educators can guide the children through responsive scaffolding and extend meaningful inquiry. These practices will ensure that critical thinking is an ongoing, process-orientated outcome that is a part of daily pedagogical interactions instead of being a discrete skill to be measured in isolation.

However, the prior research has shown several key limitations. For instance, the majority of the evidence that was collected to support the relationship between the RE approach and critical thinking development is often qualitative and context-specific. Although perception-based studies identified that there were higher levels of curiosity, problem-solving abilities, engagement, and communication skills among children, these findings can be highly interpretive and rely on the educators' pedagogical understanding. This shows that the RE approach does not directly produce critical thinking outcomes, but it allows learning conditions that can

promote cognitive engagement to be developed when inquiry, reflection, and dialogue are facilitated purposefully. As a result, this revealed that the RE approach's effectiveness in promoting critical thinking is highly reliant on the quality of implementation and the professional competency of educators.

Pedagogical Conditions Influencing the Effectiveness of the RE Approach

Prior research has indicated often that the effectiveness of the RE approach in supporting children's critical thinking is dependent on the specific pedagogical and organisational conditions employed. Although this approach prioritises inquiry and child-centred learning, its impact on cognitive development relies on how educators interpret and apply its principles in practice.

Educators' competence has been identified to be a crucial factor that impacts how effectively the RE approach can be implemented in classroom settings. Educators take on the roles of facilitators, partners, and peers for close monitoring of children, facilitating inquisitive thoughts rather than delivering predetermined curriculum, apart from analysing children's learning processes. Research also highlights the importance of educators having strong professional knowledge, reflective practice, and pedagogical sensitivity in sustaining meaningful inquiry-based learning. If educators lack sufficient theoretical understanding and practical skills, RE-inspired activities could only take place at surface-level, limiting opportunities for deeper cognitive engagement among the children. This shows that inquiry alone is insufficient and therefore, it has to be accompanied by meaningful scaffolding and intentional facilitation to promote children's reasoning, problem-solving, and reflection.

Pedagogical documentation plays a critical role in this process by enabling educators to make children's thinking visible, reflect on learning trajectories, and plan responsive extensions of inquiry (Zaenab, 2022; Nair et al., 2024). Documentation supports educators in identifying emerging interests, tracking conceptual development, and designing experiences that challenge children's thinking. From a critical thinking perspective, documentation functions not only as a record of learning, but also as a tool for promoting metacognition, as children revisit previous ideas and reconsider their understanding.

The learning environment further shapes the quality of cognitive engagement in RE-inspired settings. Studies emphasise the role of intentional space design, access to open-ended materials, and sufficient time for exploration in encouraging sustained investigation and dialogue. However, scholars caution that rich environments alone do not automatically generate critical thinking (Robson & Mastrangelo, 2018; Santin & Torruella, 2017). Environmental features must be integrated with pedagogical intent and adult mediation to support higher-order thinking. This indicates that the environment becomes an effective "third teacher" only when educators actively use it as part of a broader instructional strategy.

At an institutional level, organisational support and alignment with parental expectations significantly influence RE implementation. In contexts where early childhood education is strongly associated with early academic outcomes, tensions may arise between inquiry-based learning and accountability demands. Such tensions can shape how educators prioritise learning experiences and allocate time for exploration and reflection (Bai et al., 2023). These constraints suggest that the successful use of the RE approach depends not only on classroom practices but also on broader professional, cultural, and structural conditions. Overall, the literature suggests that the RE approach should be understood as a pedagogical framework rather than a prescriptive model. Its effectiveness in fostering critical thinking is determined by the interaction between educator competence, pedagogical intentionality, environmental design, and institutional support. This reinforces the importance of examining RE implementation within specific contexts, particularly in non-Western early childhood settings.

METHODOLOGY

Research Design

This study utilised a qualitative case study design to explore the effectiveness of the RE approach in

supporting preschool children's cognitive development, as well as to examine challenges related to its implementation. A qualitative approach was appropriate because the study sought to gain an in-depth understanding of pedagogical practices as they occur within a real educational context. The design is supported by constructivist and sociocultural perspectives, which conceptualise learning as a process shaped through social interaction and contextual experience (Piaget, 1964; Vygotsky, 1978). Within early childhood education research, qualitative case studies are widely recognised as suitable for investigating child-centred pedagogies that are dynamic, relational, and not easily captured through quantitative measures (Creswell, 2012).

A major strength of this design lies in the strong alignment between the research questions, theoretical framework, and methodological approach. Concentrating on one center that implements the RE approach permits a comprehensive analysis of classroom practices, teacher's roles, learning atmospheres and children's involvement in daily routines. However, relying solely on one single case restricts how effectively and broadly these findings can be applicable to other contexts and cross cultural settings.

Contemporary studies demonstrate that using comparative or multiple-case approaches can strengthen deeper analysis and enhance generalisability, particularly when implementing RE practices across different cultural and institutional contexts (Santín & Torruella, 2020; Manera, 2022). Without such comparisons, the validity of the results is closely associated with the particular setting that was being studied.

Population, Sample, and Sampling Techniques

The population for this study consisted of early childhood educators and preschool-aged children involved in RE-inspired educational settings. A purposive sampling strategy was used to select participants with direct experience and knowledge of the RE approach. The sample comprised one centre, one principal, one teacher (atelierista), and eleven children aged between 18 months and four years. This approach aligns with qualitative research traditions that prioritise information-rich participants to achieve depth of understanding rather than broad representation (Creswell, 2012).

Even though the population used both educators and children for the study by means of examinations of pedagogical intentions along with observing learning behaviour, the limited sample size is a constraint. This reduces the professional outlook as the reliance is only on a single teacher and administrator. This could increase the influence of individual bias. Recent studies recommend involving a broader range of stakeholders, including multiple educators and parents, to enhance credibility, reflexivity, and trustworthiness in qualitative early childhood research (Dankiw et al., 2023; Manera, 2022).

Instruments

As a method which is widely regarded as effective for examining inquiry-based and child-centred educational practices (Chand, 2025; Creswell, 2012), data for this study were collected using semi-structured interviews and non-participant classroom observations, reflecting a triangulated qualitative approach (Ruslin et al., 2022). Semi-structured interviews allowed educators to express their pedagogical thoughts, experiences, and reflections in their own words, while classroom observations provided insights into teaching practices, spatial organisation, and children's interactions.

Despite these strengths, the study would benefit from clearer articulation of how the research instruments captured key constructs such as cognitive development, creativity, and problem-solving. Recent literature highlights the importance of explicitly linking data collection tools to theoretical constructs to enhance analytical clarity and rigour (Crotty et al., 2023). Additionally, the absence of document analysis—such as pedagogical documentation or children's portfolios which should have been maintained by the setting—represents a methodological limitation, particularly given the central role of documentation within RE pedagogy and its frequent use in contemporary research (Santín & Torruella, 2020; Manera, 2022).

Pilot Testing, Validity, and Reliability

Recent literature increasingly advocates pilot interviews or trial observations as a means of enhancing clarity, reducing ambiguity, and minimising researcher bias (Creswell, 2012). Adhering to that, this study reported informal pilot testing through supervisory review of the research instruments, a practice commonly accepted in qualitative research. However, the inability to carry out a formal pilot phase limited the opportunity to properly structure or edit interview questions and observation procedures based on real-world implementation.

Many strategies were employed to enhance credibility, including data triangulation, prolonged engagement in the research setting, and the use of rich descriptive accounts. These strategies are consistent with established qualitative quality criteria (Nowell et al., 2017). Nevertheless, the absence of peers or member checking shows a limitation, as this technique is widely recommended to strengthen interpretive accuracy and participant validation (Birt et al., 2019). Dependability was addressed through systematic transcription and inductive coding; however, the lack of intercoder agreement or peer debriefing limits analytical transparency. Recent team-based qualitative research emphasises collaborative coding practices to enhance trustworthiness and reduce individual interpretive bias (Zreik et al., 2022).

Ethical Issues

As for ethical consideration, it was carefully addressed and given much thought throughout the study. Institutional approval was obtained prior to data collection, and informed consent was secured from educators, along with parental consent for classroom observations involving children. Confidentiality and anonymity were maintained, and observations were conducted in a minimally intrusive manner, consistent with ethical standards for early childhood research (Sendil & Sonmez, 2020).

A notable strength of the study lies in its sensitivity to the vulnerability of young children. However, contemporary ethical studies emphasises the importance of recognising children as active participants rather than passive subjects as used in this study. Greater attention to children's assent—such as observing signs of comfort, engagement, and willingness—would further strengthen ethical reflexivity and align the study with current child-centred ethical expectations (Coker et al., 2025).

RESULTS

In the following sections, each factor and its findings are laid out individually and the results from the study suggested that the feasibility and challenges of the implementation of RE approach depends on several factors (see Table 1):

Table 1: Themes and Challenges

Themes	Challenges
The RE curriculum/Emergent Curriculum	Administration
The RE materials and environment	Inadequacy of trained teachers
The relationship between atelierista and children	Different cultural perspectives
Social interaction	
Parents' perceptions and collaboration	

RE Curriculum / Emergent Curriculum

Analysis of the educators' interviews indicate that the emergent curriculum is a progressive and evolving approach that is a joint effect between the educators and the children. No fixed curriculum has been drafted before the lesson. The curriculum is generated from children's minds, their interests and the questions they

frequently ask during the lesson time. One interviewee reflected, "... part of the curriculum focuses on how narrative children are. I believe that a lot of learning comes from children's narratives."

Educators frequently observed the children's conversations and were actively involved in thought-provoking communications with the children to identify the themes or topics for the next lesson. Another interviewee mentioned, "...For example, a child who has recently mentioned a few times about her mum's house. As a teacher, I make use of this topic, form open-ended questions to prompt more ideas from the child..."

The RE Materials and Environment

Classroom observation reveals that the RE physical setting was set up for children to move and act freely and actively. The use of natural materials, colours, textures, and lighting, and the environment was designed to be aesthetically pleasant and rewarding. This was to encourage children to explore and experiment on the materials independently.

The observation noted that children tended to feel like this was home for them as they could sleep on the beanie sofa or hide themselves in the tiny block house. The environmental stimulations promoted a welcoming atmosphere to the children. The primary colours-green and yellow were painted on the wall, the children's work and photographs were hung up on the ceiling to acknowledge children's efforts and some live plants were used to divide areas of interests such as the division of private areas and tables for group activity. Overall, the physical setting serves as a stress-free coordinator of imagination, socialisation, creativity and inquisitive thought.

The Bonding Between Atelieristas and Children

Interviewees pointed out that a long-term relationship between atelieristas and children was established via different projects such as drama programs during the school holidays. One interviewee described, "Once children are familiar with their surroundings, they are more willing to express their thoughts. Meanwhile, another interviewee highlighted the role of the atelieristas in the classroom, "I would say teachers in the class are the partners and observers that understand what children are interested in; whereas children are the active knowledge constructors." Via the observation, it was noted that main teachers and shadow teachers collaborated together to cater to different children's needs. The atelieristas (main teachers) sat together with the children, asked open-ended questions focusing on what, why, and how to arouse the interests of children.

Social Interaction

The findings suggest that social interaction and collaboration are promoted when children are encouraged to work together. One interviewee indicated that "when children collaborate, they find problems together and help each other to solve the problems." Another interviewee noted that "They have to talk and socialize with their peers in order to perceive ideas and new outcomes."

The observational data served as a reference, recording children's spontaneous use of the vocabulary their peers had utilised and their active engagement in conversations with their peers when they were doing the project. It clearly reflected the RE approach, centering around the relationship, communication and collaboration.

Parents' Perception and Collaboration

The findings show that parents' increased awareness of the RE approach and feedback given by them

support children's cognitive skills such as language ability, problem-solving skills and social skills. One interviewee stated that, "For parents who believe in the RE, they will give time for children to develop their problem-solving skills, language skills and social skills."

Another interviewee indicated that,

“...some parents may be surprised by the changes their children have after attending RE’s class. They find that their children are more willing to express thoughts and able to communicate when a problem arises.”

Both interviewees indicated that teachers’ constant communications with the parents through photos uploaded on private group chat and parent-teacher conferences enhanced parents’ understanding on the active roles they could play to collaborate with the teachers.

The Image of Child

The findings indicate that children are perceived as active knowledge constructors who are creative and full of imagination. One interviewee illustrated the view, saying, “Children are active learners, social entities, researchers and creators. As you have observed in the classroom, children couldn’t sit still... They roamed freely and made use of their imagination to maximize their learning.” Interviewee B affirmed the idea that, “I am sometimes amazed by children’s problem-solving skills.” Observational data supported these statements as children created things, figured out solutions and constructed their mental representation by exploring the materials prepared for them in the classroom.

Documentation

Analysis of the findings reveal documenting children’s progress provides a better understanding of the children’s performances and supports teachers’ reflections of the effectiveness of their lessons. Both interviewees affirmed this perspective, stating that, “...these records can be the references for the reflection. And when Ms Michelle and I get together after school hours, we will use these records to have further discussions. “

“Collecting their work, their narratives, and photographs of children working with others can explain to the parents what they are doing in the class.”

Observational data indicated that detailed notes about the particular sentences children had used were recorded, children’s artwork and photographs had been hung up for children to initiate conversational topics about their past learning experiences.

Practical Challenges while Implementing The RE Approach

Implementing the RE approach requires close collaboration between children and adults; maintaining the RE approach does have other considerations and realistic obstacles such as administration, different cultural perspectives and inadequacy of trained teachers.

Administration

The findings show that the implementation of the RE approach requires a lot of atelieristas’ efforts and a lot of administrative work. One interviewee commented that, “Consistently, Ms Michelle and I will sit down together to plan for the curriculum, the next lesson and the long-term projects after the discussion with parents and children.”

Another interviewee stated the preparation work as below, “...after children finish the lessons, we have to clean up, reflect on our lessons, exhibit children’s work or document them and plan for the next lesson.”

Different Cultural Perspectives

The findings suggest that various cultural expectations should be taken into consideration while integrating the RE approach. One interviewee noted that, “Indeed, there are a lot of preschools that have great

syllabuses that suit parents' expectations to fulfill children's academic achievement...some prefer a more traditional way of teaching.

Another interviewee highlighted the awareness of cultural blend, stating that, "We do have students from Spain, Japan, Korea and India. Even though sometimes it is hard to explain what we are doing, when children finish the class and talk with their parents, their parents can feel we are really doing something fun for children."

Inadequacy of Trained Teachers

The findings show that lack of trained professionals to implement the RE approach can be caused by heavy operating costs, low salaries and teachers' qualifications. One interviewee pointed out that, "It is quite unfair to the teachers who work so hard but the salaries we can afford to pay do not equate to their efforts...Since this approach is still not widely known in Johor Bahru, our student enrollment is still limited to a small number and hence, we are facing the problem of maintaining the business. Considering the practical challenges posed by the reality, interviewees remained conservative by keeping the center size relatively small to manage.

DISCUSSION

Based on the study conducted, RE approach has positively impacted the cognitive development of preschoolers as child-centered learning, project-based activities, and teachers as facilitators which are highly emphasised in providing students with a dynamic and engaging learning environment allowing the implementation of constructivist approach to children's learning. For example, as the RE approach has no fixed curriculum, this study found that children created things and came up with solutions through exploratory learning, allowing them to be active learners, which supports Piaget's Theory of Constructivism. Apart from that, the atelieristas who provide scaffolding by engaging the children with open-ended questions and suitable materials during the learning process support Vygotsky's Sociocultural Theory and the Zone of Proximal Development.

These findings align with the key characteristics of the RE approach which focus on encouraging creativity, collaboration, and inquiry-based learning (Hakimovna, 2024). Children at this learning center displayed improved problem-solving skills, language ability, social interaction skills apart from increased curiosity and creativity with regards to the application of RE approach in Johor Bahru indicating that it is feasible. This finding is supported by the research conducted by Soupi & Rahman (2025) where the findings showed that students at Malaysian TASKA/preschool centers displayed improved problem-solving skills, curiosity, and confidence with the application of RE approach in their learning. Although other preschools implement various other teaching methodologies, the RE approach can be considered effective by ensuring preschools applying this method should have sufficient trained teachers, funding, and proper documentation of the children's learning progress.

As the RE approach originated from Italy, its effects could differ due to cultural contexts as noted in Chen & Rahman (2025) research where it was found that there was significant cultural difference between the RE approach and the consistent parental expectations of education in terms of their excellence based on academic achievement. Moreover, Malaysian National Preschool Standard Curriculum is outcome-oriented based on specific learning standards which contradicts with the RE approach of emergent curriculum which does not have a fixed end goal and has an unpredictable learning pathway (Salim & Mohamed, 2023). This would cause difficulties to implement play-based learning like the RE approach completely in Malaysian context (Hashim & Ying, 2025). Hence, cultural adaptation should be of importance where different ethnic compositions in Malaysia and parents' perceptions of this approach are taken into consideration when this method is applied in different educational settings to ensure a successful learning process. One way to bridge the gap between the traditional method and RE approach is by using documentation through photographs, narratives, and displaying their work to make learning visible and meet the academic expectations of Malaysian parents and the national standard.

Apart from that, as per the study, atelierista training and support is vital in ensuring the successful application of this approach as atelierista facilitate in identifying what piques children's interest and to come up with effective activities that suit each child's individual needs. This is because it has been identified in various studies that the common challenges faced during the implementation of RE approach were insufficient training and inadequate resources, apart from cultural differences and parental expectations (Chen & Rahman, 2025; Soupi & Rahman, 2025). This can be done by providing continuous professional development for educators to ensure that their skills are on par with children's requirement allowing them to create nurturing learning environments and promote cognitive development while adapting western educational models like RE in Asian settings creating a hybrid model that is continuously and consistently feasible (Chen & Rahman, 2025). This hybrid model will emphasise on ensuring children remain active learners while using structured curriculum to meet the national numeracy and literacy goals through documentation that acts as evidence of children's learning progress.

Although this study's primary focus is cognitive development, we should be aware that child development is multifaceted and as identified in the study done by Yerdembekova et al. (2025), RE approach provides emphasis on child-centered and exploratory learning to provide holistic development of a child and the findings showed that the implementation of this approach displayed improvement in the preschool children's physical and emotional development. In Yerdembekova et al. (2025)'s study, it was highlighted that in terms of social interactions or teamwork and sportsmanship, the preschool children did not display significant differences indicating the need for further structured interventions which contradicts with the findings of the research conducted in Johor Bahru where students showed good social interaction and collaboration skills with the implementation of RE approach. This contradicting results could be contributed by several factors like peer dynamics, teacher facilitation, and classroom environment and not just a specific instructional approach which is more prominent in Malaysian preschools (Yerdembekova et al., 2025). For instance, the learning center provides a comfortable, stress-free learning environment for the children to learn in where they feel like home, allowing better scaffolding to take place and engage in peer social interactions which were lacking in the Yerdembekova et al. (2025)'s study settings.

Therefore, the impact of RE approach on physical development, creativity, and social-emotional skills should be further explored by researchers and educators to provide a better overall picture on its effectiveness for a well-rounded development of young children. Future researchers should also conduct this study in various learning centers from various states to allow the generalisation of results obtained as the current research was done using one learning center in Johor Bahru.

CONCLUSION

This research studied to what extent is the Reggio Emilia (RE) approach feasible in supporting the preschool children's cognitive development in a specific preschool setting. Based on the data collected from classroom observations and educators' point of views, the findings showed that the RE approach implementation was able to cultivate children's curiosity, probe investigative nature among the children, promote social interaction, and reflective engagement in learning. Based on the constructivist and sociocultural perspectives, the RE approach identifies learning as a continuous learning process that is built through exploration, peer interaction, and teacher facilitation. Therefore, these activities allowed meaningful cognitive abilities such as problem-solving and social reasoning to be improved among preschool children.

From the methodology point of view, this study has shown a strong alignment in terms of the theoretical framework, research questions, and qualitative case study design. The highlights of this research is that in-depth exploration of a real-world setting was done, data sources were triangulated, and ethical considerations were taken to ensure that the research was done ethically. Nevertheless, there are many opportunities for further improvement of the methodological aspect to allow it to be more reliable, valid, and generalisable by using larger or multiple-case samples, formal pilot testing, participant validation, and collaborative analytic processes.

In addition, the findings revealed that the RE approach is not a standardised model nor is it a practice that can be applied universally for all preschool contexts. Factors that determine the effectiveness of this approach are educators' comprehension of the RE core principles, educators professional competence in implementing this approach, and how well they can design the learning content to suit the contextual conditions. However, there are various challenges such as teacher training, contextual constraints, parental expectations, and operational demands that could possibly affect the quality of implementing RE approach in Malaysian preschools as identified in this study. This research findings has further reinforced on how vital it is to consider RE approach as a pedagogical tool, not as a "one-size-fits-all" solution.

In conclusion, this study has contributed to further discussions on alternative pedagogies in early childhood education by providing valuable insights on how RE-inspired practices can be used to further enhance preschool children's cognitive development. This study has identified the necessity of reflective and informed pedagogical practice among educators. Future research should continue to examine the relationships between pedagogy, learning context, and children's cognitive development across diverse early childhood settings in-depth to act as a guidance for teachers, policy makers, and educational institutions in ensuring that they can develop curriculum that allows the holistic development of learners.

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