Innovating Teaching Aids for Early Childhood Education through Sensory Development and Play-Based Learning: CUESORY

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ABSTRACT

The creation and efficacy of CUESORY, a cutting-edge sensory-based teaching tool intended for play-based learning in early childhood education, are examined in this study. The study tackles the dearth of all-encompassing sensory teaching resources that holistically support preschoolers' cognitive and socioemotional development, and it is based on Jean Piaget's developmental theory. The primary tool for gathering data in this study was an observation checklist, which was part of a Design and Development Research (DDR) methodology using the ADDIE paradigm. Ten three-year-olds from a Penampang, Sabah nursery was chosen and split into two groups. One for treatment (using CUESORY) and the other for control (conventional instruction). Both pre-test and post-test observations were conducted during the two-week intervention. The results show that the therapy group significantly improved in early science, early mathematics, socioemotional development, and fine motor skills. Indeed, the greatest mean increase (1.10) was seen in early science development, which was followed by socioemotional development (1.06). These findings show that CUESORY promotes holistic child development and successfully improves integrated learning approaches. As a fundamental teaching method, the study suggests including CUESORY into the preschool curriculum. To guarantee the successful application of sensory-based learning and maximize children's developmental results, it also emphasizes the necessity of teacher preparation, family participation, and continuous evaluations.

INTRODUCTION

The importance of sensory activities has been recognized by the National Association for the Education of Young Children (NAEYC) in the USA (Bartan & Alisinanoglu, 2024). Teaching aids like CUESORY play an essential role in early childhood education, particularly in preschools and kindergartens. This article discusses the significance of using teaching aid CUESORY, in the teaching and learning process. It highlights how these tools enhance children' understanding of the curriculum, thereby fostering cognitive development and problem-solving skills in children.

In today's classroom, sensory teaching aids are essential since they improve learning outcomes and experiences in several ways. Conscious sensory education is important because children use their senses to discover and recognize their surroundings (Ceylan, Beşir, & Korkut, 2021). These assistive technologies serve kids with unique needs, accommodate a variety of learning styles, and help pupils retain and assimilate information better by using multiple senses. When children utilize their senses actively throughout childhood, they engage with their surroundings and create learning experiences.

The CUESORY is an innovative sensory teaching aid designed to facilitate physical, cognitive, and sensory development in children. CUESORY also can be defined as multisensory teaching aid that requires students to activate their full faculties such as seeing, hearing, smelling, tasting, moving, touching, thinking, intuiting, enjoying in a variety of situations. By using this material, children's intellectual and social potential can be progressed, and their minds can be engaged with play-like lessons which relate to their real life (Korkmaz & Karatepe, 2018). Moreover, creative teaching can make learning invaginating, meaningful and more student-centred, thus helping children better develop the necessary cognitive and emotional skills (Suharyati et al, 2019). The CUESORY is designed to assist educators in delivering engaging hands-on and minds-on activities for

young learners. Thus, this aid outlines various activities within the sensory cube, each targeting different areas of development according to the PERMATA framework.

This strategy is in line with Malaysia's PERMATA curriculum model, which places a strong emphasis on integrating care and education to promote holistic child development. In order to ensure healthy development from birth and establish the groundwork for lifetime learning, PERMATA focuses on nurturing children in five important domains: physical, emotional, spiritual, intellectual, and social (Prime Minister's Department, 2013).

LITERATURE REVIEW

According to Jean Piaget, the first stage for a child to learn is through the senses. Jean Piaget also emphasized that the cognitive development of children occurs through four stages of development. The first stage is sensorimotor that occurs from birth to 2 years, the preoperational is from 2 years to 7 years, concrete operations is from 7 to 11 years and operational from the age of 12 and above. It is important for these children to be given appropriate stimulation to maximize the child's development. The early stage of child development is a very crucial time so that every aspect of child development can be fully developed.

However, in the past two decades, the way of educating children has changed along with rapid development of technology. From a positive view, the development of technology and gadgets has changed the way of life of society to become faster and everything needed can be reached at the fingertips. In fact, the way children are raised and developed nowadays seems to have changed faster with the development of technology. Parents and teachers do not miss using the development of technology and gadgets in children's learning. The development of technology and several types of gadgets have a positive impact from various angles. However, uncontrolled use will cause negative effects especially on the social and emotional development, fine and gross motor skill, language and communication skills and even other developments will also be affected.

To prevent children's development from being disrupted, parents and teachers a conducive environment to help children explore the environment by exploring, experimenting, making observations, and interacting with the world around them to add new knowledge, build on existing knowledge and adapt ideas already in mind to children. It is important for an environment that is available to support Developmentally Appropriate Practices so that children can develop according to their own age, abilities, and capabilities. Parents' involvement should not be limited to learning at home. It is even necessary for parents to work together with teachers to help and support the things that are needed so that the child's potential can be reached as much as possible. In addition, Barger et.al (2019) stated that parental involvement in children's schooling and academic development has a positive impact on their achievement and development.

Hence, innovative ways must be introduced to maximize children's development, especially those that include aids and tools designed to support the learning process. Play-based learning emerges as a powerful methodology, enabling active engagement and meaningful knowledge acquisition (Pyle et al., 2022). It plays a pivotal role in developing pre-reading and pre-math skills, language and communication aptitude, and social and emotional growth within the context of play. An effective product or educational approach should address children's physical prowess, cognitive acumen, language acquisition, and social-emotional development, while placing paramount importance on safety in material selection. This background information provides a comprehensive foundation for evaluating Cube Education Sensor's approach within the context of innovative educational practices. It offers a framework to assess how CUESORY aligns with established developmental theories, responds to the challenges posed by technology, fosters a nurturing environment, encourages parental involvement, and leverages play-based learning to optimize children's holistic development.

Therefore, CUESORY is grounded in Jean Piaget's developmental theories, which emphasize the importance of sensory-motor experiences in a child's cognitive development. According to Piaget, children actively construct knowledge through interactions with their environment, with sensory experiences serving as the foundation for learning. Sensory activities are important to the development of motor skills, sensory processing capabilities, and cognitive abilities (Magosso & Ursino, 2022). CUESORY integrates this theoretical framework into its design, recognizing the pivotal role of sensory stimuli in facilitating meaningful learning experiences for young children. Overall, CUESORY provide opportunities for learning, problem-solving, social interaction, and the

development of cognitive and sensory skills in children. Sensory activities help in the development of children in all aspects of psychological development. A stimulating and varied motor environment has a significant impact on children's intellectual function and the development of their potential abilities.

Like Piaget, Montessori's theory of development is also constructivist. She describes stages in development or sensitive periods for learning. For instance, Lillard (2023) emphasizes that the Montessori method fosters holistic development—physical, emotional, spiritual, intellectual, and social—through hands-on activities and teacher-guided exploration. Methods that are suitable for children's learning problems, the teaching tools provided must have special properties so that children can use their senses. The Montessori method and its teaching materials emphasize "sensory learning and teaching" and teaching methods in Montessori schools prioritize visual training, hearing and touch. This aims for children to gain priority and practice using their senses quickly. She concluded that children's behavioural language is an effort and learning about the environment by using their hands. This idea that the Part for Intellectual Development Is Because of the Hand, is an important theme in her method.

CUESORY exercises that require the use of several senses considerably improve sensory stimulation in children. For example, in face part assembly activities, children use their sense of touch to feel the texture and form of distinct facial components. This tactile involvement allows kids to detect and understand physical aspects through touch. William and Berthelsen (2020) study demonstrate that children who engage in tactile play on a regular basis, such as manipulating clay or building blocks, have substantially enhanced their fine motor skills and hand-eye coordination. Meanwhile, Miller et al. (2023) studied sensory processing issues and discovered that controlled tactile interactions can help children with sensory processing abnormalities improve their fine motor abilities while decreasing tactile defensiveness. Additionally, the sense of smell is used in the "Identify Fruits and Vegetables" activity. This practice introduces youngsters to the fragrances of fruits including apples and oranges. This tactile learning activities improve children's memory recall and spatial knowledge (Smith et al., 2019).

METHODOLOGY

This study adopts the Design and Development Research (DDR) approach using the ADDIE Model (Branch, 2009) to produce a teaching and learning model. The rationale for employing this design is that it represents a structured development process resulting in a tangible product—in this case, a teaching aid—which encompasses the stages of analysis, design, development, implementation, and evaluation (Richey & Klein, 2014). The research method employed is qualitative in nature, specifically through observations using a checklist. The methodology is divided into two main sections: (1) the development of the Teaching Aids Innovation: CUESORY, and (2) the study of the effectiveness of CUESORY in a teaching and learning context.

For the effectiveness study, 10 children aged 3 years from a nursery were selected. The choice of 3-year-olds was based on their developmental readiness to respond to teacher inquiries, communicate, follow instructions, and their suitability for using CUESORY, which emphasizes sensory development. The study was conducted over two weeks. During the initial two days, the researcher conducted observations using a checklist to gather pre-test data. For checklist items that could not be directly observed, the researcher consulted teachers to complete the pre-test assessment.

Following the pre-test, five children were placed in the treatment group and were taught using CUESORY. Post-teaching observations and assessments were then carried out using the same checklist. The remaining five children formed the control group, receiving regular instruction without the use of CUESORY or any teaching aids. After the sessions, the researcher observed and assessed the control group using the post-test. All pre-test and post-test data were collected within the two weeks to determine the effectiveness of the CUESORY teaching aid.

Development of Teaching Aids Innovation: CUESORY

The development of CUESORY is grounded in established developmental theories and the principles of play-based learning. This framework ensures that the tool is designed to support children's physical prowess, cognitive acumen, language acquisition, and social-emotional development.

The development of teaching aids, particularly CUESORY, involves a crucial phase where the module is constructed based on needs analysis and content suitability according to the standards in the PERMATA curriculum. The PERMATA curriculum is a national early childhood education framework in Malaysia that emphasizes holistic child development, encompassing physical, emotional, spiritual, intellectual, and social domains. It promotes child-centered learning through play-based and inquiry-based approaches, ensuring that teaching practices are developmentally appropriate and culturally relevant for children from birth to four years old. During this construction phase, the researcher plays a vital role in ensuring that CUESORY is fully utilized by children. Initially, the researcher must train the teacher to understand how to use CUESORY to teach the children.

CUESORY needs to be explained and demonstrated to the children at the beginning to ensure they understand how to use it. After providing explanations and demonstrations, the teacher allows the children to try it out on their own. Simultaneously, the teacher guides the children to ensure they understand how to play the game correctly.

CUESORY is a specialized sensory cube designed to provide unique and engaging sensory experiences for children. These cubes often go beyond the typical sensory elements found in standard sensory cubes, incorporating creative and novel features to capture a child's interest and imagination. For instance, CUESORY aligns with established developmental frameworks like the PERMATA framework, supporting recognized principles of child development and learning. This alignment makes it a valuable tool for educators and parents.

CUESORY often features themed sensory elements, such as faces, shapes, or animals, allowing children to explore and learn about the chosen topic through touch, sight, and sound. This provides sensory-rich experiences essential for early childhood development, aiding in sensory processing and exploration. Additionally, some parts of CUESORY are designed for storytelling, with each side presenting a different part of a story. As children manipulate the cube, they uncover new elements of the narrative, encouraging imaginative play and language development.

Moreover, CUESORY is excellent for developing fine motor skills, as children use their fingers to manipulate buttons, fasten snaps, and fit pieces into designated spots. In an age dominated by screens and technology, CUESORY promotes hands-on, tactile learning, providing a break from digital devices and encouraging engagement with physical materials, which is especially important for sensory and fine motor development.

The ability to customize CUESORY activities to meet the unique needs of each child sets it apart. This flexibility ensures that the product can adapt to different developmental levels and individual preferences, making it suitable for a wide range of children. CUESORY often incorporates educational content related to the chosen theme, helping children learn about specific topics while playing, such as shapes, colors, numbers, letters, and everyday objects. They often include elements like pockets with removable shapes or pieces.

Furthermore, CUESORY's versatility makes it adaptable for children with special needs, including those with sensory processing disorders or developmental delays. This inclusivity is a significant innovation, ensuring that more children can benefit from the product.

In summary, CUESORY's novelty lies in its ability to provide a comprehensive, customizable, and age-appropriate approach to child development while fostering parent-child interaction and aligning with established educational principles. It addresses the unique challenges of modern early childhood education and offers a valuable tool for educators, parents, and caregivers.

Effectiveness of the Use Of CUESORY.

This study selected 10 children aged 3 years from a nursery school in Penampang. The choice of 3-year-olds was based on their ability to respond to teachers' questions, communicate, follow instructions, and their suitability for using CUESORY, which focuses on sensory development. The researcher conducted the study over a period of 2 weeks.

In the first phase, the researcher conducted observations over two days using a checklist to assess each selected child. For assessment items that were not directly observable, the researcher consulted with teachers to complete the pre-test data. Following the pre-test, a treatment group of five children was introduced to CUESORY, an educational tool used for instruction. Post-teaching observations were conducted, and a post-test was administered to measure progress. Meanwhile, the control group, also comprising five children, received instruction through traditional methods without additional teaching aids. After the teaching sessions, the researcher observed the control group and administered the post-test. This methodology provided both pre-test and post-test data within a two-week period, allowing for comparative analysis of the intervention's effectiveness.

RESULT

The findings of this study are divided into several sections: cognitive development, sensory development, and teachers' perceptions. The results are then explained in more detail using a labelling system for the children's achievements. Each child's achievement is marked with numbers 1-3: 1-not mastered, 2-in the process of mastering, and 3-mastered.

Pre-test Results

The pre-test results show that items 1 and 2—good eye-hand coordination and the ability to integrate multiple senses (touch, sight, and hearing)—were mastered by all respondents at level 3. The researcher observed that each child could perform activities with good eye-hand coordination. This is attributed to early training, as children were exposed to activities like writing, using scissors, coloring, and sticking in their daily nursery activities. The researcher found that all selected children mastered the first item. For the second item, children could follow teacher instructions and complete tasks well, reaching the level of mastery in integrating multiple senses.

Item 3: Ability to use fine motor skills and eye-hand coordination to push and pull. The findings showed that only 4 children mastered this item, while the others were still at level 2. Although children had good eye-hand coordination, they were weak in pushing and pulling. The researcher noted that the children lacked strength in controlling their fingers to handle small objects like zippers and buttons.

Item 4: Expressing emotions through play. Only 3 children mastered this item, 3 were at level 2, and 4 were at level 1. Many children struggled to express common emotions like happiness, sadness, and anger through the "daddy face" game. This item should be mastered by children aged 3 and above, as recognizing and understanding emotions are fundamental life skills. The findings suggest that the children had not yet fully grasped or understood their emotions.

Item 5: Following multiple instructions simultaneously (e.g., "find 3 types of fruits and put them in this basket"). This item was not mastered by any children. Two children were at level 2, and the rest were at level 1. The children could not follow multiple instructions at once; the teacher had to give instructions one by one. Children at level 1 appeared confused by multiple instructions, while those at level 2 could only follow the first instruction they heard.

Item 6: Imagination based on a story. All children were at level 1. The researcher showed a picture and asked the children to describe what they saw. The children could name what they saw but couldn't narrate or imagine a story based on the picture. This item was the weakest among all.

Post-test Results

The post-test results were divided into two groups: treatment and control, with each group undergoing different teaching methods—CUESORY for the treatment group and regular teaching for the control group. The first comparison is between the post-test results of the two groups.

The post-test results show a significant difference between the control and treatment groups. For the treatment group, items 1-5 showed that only 2 children were at level 2, while the rest had mastered the items. In contrast, the control group had 4 children at level 1, 6 children at level 2, and the rest had mastered the items. This indicates a significant difference between the two groups, with the CUESORY teaching method greatly aiding sensory development. The researcher found that children understood the lessons better and could apply their learning more effectively with CUESORY.

Item 6: Imagination based on a story. Both groups showed similar levels, with the treatment group having one child at level 3. The control group still struggled with this item, with only 2 children at level 2 and the rest at level 1. The researcher noted that at age 3, children are still developing their imagination skills, which will improve over time.

The second comparison is between the pre-test and post-test results of the treatment group. The comparison is shown in the following table.

Table 1.0 Comparison of Pre-test and Post-test Results for the Treatment Group.

	Pre-test	Post-test	Improvement
Part A- Fine Motor skills	2.80	2.93	0.13
Part B- socioemotional	1.33	2.40	1.06
Part C- Early Math	1.76	2.64	0.88
Part D- Early Science	1.70	2.80	1.10

Based on the table, it can be observed that each section in the checklist shows a significant improvement. The smallest increase is seen in Part A, which is involves fine motor skills. In this section, the children were already proficient in using fine motor skills before the study began, which explains the minimal difference observed. However, the largest improvement from the pre-test to the post-test results is in Part D, which focuses on early science. Children were tasked with naming animals, vegetables, and fruits. The researcher noted that the use of CUESORY (presumably a tool or method used during the intervention) greatly facilitated the identification and reinforcement of the lessons, particularly in recognizing names and similar tasks. In this part, Item 13 recorded the highest post-test mean score of 2.8, with an increase of 0.80 points for this item in the treatment group. Conversely, there was only a 0.30-point improvement in Item 12, which involved naming fruits and vegetables.

Next, the second-highest increase occurred in Part B, which addresses socioemotional development. Using the Daddy Face game, the respondents were able to master the items in the socioemotional section effectively. The researcher used this emotional game section to introduce emotions and facial expressions, helping the respondents understand different emotions. The respondents performed well in learning this aspect, reaching the third level in the socioemotional checklist. The mean score data in the table clearly outlines the findings of the study. While each section showed improvement, even if minimal, the overall results demonstrate positive progress.

DISCUSSION

CUESORY and other teaching aids are essential tools for preschool and kindergarten teachers. The usage of teaching aids is regarded as an essential component of the teaching and learning process, improving students' understanding of the curriculum (Libau, 2020). This is critical for promoting cognitive development and problem-solving abilities in children.

CUESORY is also an excellent resource for parent-child activities, allowing parents to actively participate with their children and spend quality time together. There are various advantages for parents who use CUESORY in their relationships with their children. This allows parents to precisely monitor their children's developmental progress and provide vital support for their growth.

CUESORY can also be utilized to entertain children while encouraging fine motor development, hand-eye coordination, and cognitive growth. This helps to reduce excessive screen time while also promoting sensory stimulation and hand-eye coordination. The development of hand-eye coordination is an important aspect in determining a child's preschool readiness and learning writing skills, which are essential for early reading. Children's basic movement skills grow in the early years of childhood and continue to develop until the end of childhood. These basic movement skills play an important role (Haningsih et al, 2024). Neglecting this development can lead to problems with coordination, balance, concentrating, and difficulties with skills such as reading and writing. As parents, we must encourage optimal growth in these areas to ensure that our children have excellent hand-eye coordination, which improves their entire quality of life.

This study shows Ten three-year-old children from the nursery participated in this two-week study. A pre-test on the treatment group (5 children) received instruction using the CUESORY approach, and the control group (5 children) received regular instruction without the use of aid. Next the post test is included. A scale of 1-3 is used in the evaluation system (not mastered, in the process of mastering, mastered). The findings showed that all items tested showed improvement, according to the findings, and the treatment group responded well to the CUESORY approach. Items 4 and 5 (playing with emotions) and 6 (imagination-based) showed a significant improvement, while items 1-3 (hand-eye coordination and multisensory integration) showed an increase from not mastering to mastering.

The use of cuesory as one of the teaching aids is very effective in improving the sensory and cognitive development of 3-year-old children. Where the sensory concept used in cuesory gives a positive response to the cognitive development of children and further increases the children's excellence in the future. According to Nur Izzati (2022) many teaching aids have a positive effect on the academic excellence of the students helped by the teaching methods used by the educators themselves. Improvements in hand-eye coordination and multi-sensory integration (items 1-3) reflect CUESORY's ability to stimulate fine motor development and sensory integration. The development of children's sensory integration helps to distinguish shapes indirectly, children are no longer confused with the shape of letters after repeatedly using multisensory techniques in reading activities because this technique integrates multiple senses at one time (Jun Long & Che Mustaffa, 2020.)

Progress in expressing emotions through play (item 4) and following multiple instructions (item 5) shows that this method also supports the development of social-emotional and language skills. According to Vivik Shofiah and Yana Silvi Aulia Mawaddah (2018), multisensory techniques can arouse desire and interest in new, arousing motivation, providing stimulation for learning activities, and even bringing psychological effects on children that ultimately increase children's concentration to learn and understand lessons.

Studies show that incorporating sensory development programs like CUESORY into early childhood education can significantly improve child developmental outcomes. The treatment group's significant improvement indicates that sensory-focused activities not only improve immediate skills but also lay a solid foundation for future learning and development.

In addition, as a researcher and prospective Early Childhood Education educator, the researcher wishes that the need to integrate more sensory-based activities in the preschool curriculum is produced. This can help improve the effectiveness of learning and the holistic development of children. Learning strategies greatly affect children's interest in learning because children at this age still depend on educators to receive knowledge.

CONCLUSION

CUESORY is based on improving sensorimotor and cognitive development in children. There is positive improvement in all the items that have been implemented. In a group setting, children provide a good response to the CUESORY children. Overall, improvement in all these items contributes to CUESORY's ability to improve sensorimotor and cognitive development. This type of homework not only helps with simple problems like math problems, but also more complex problems like emotional and imaginative expression. The results indicate that CUESORY can be used as a foundational tool in early childhood education to help children reach their full potential.

CUESORY has the potential to become the primary focus of early childhood education. One can consider CUESORY to be a subset of the early childhood education curriculum in schools and daycare centers. Learning that focuses on the development of sensory and cognitive skills through play activities can help children reach their full potential. Second, there is room for the teacher and the student. It is necessary to provide guidance and instruction to teachers and students in order to understand and apply CUESORY with diligence. In this lesson, many teaching techniques that employ various theories and methods to enhance children's cognitive development might be discussed.

CUESORY has demonstrated efficacy in augmenting children's sensory and cognitive growth. All of the evaluated items have shown improvement. The CUESORY approach was well-received by the kids in the therapy group. The enhancement of children's sensory and cognitive development through the CUESORY approach is demonstrated by the overall gains in all these items. This approach supports the more fundamental abilities like hand-eye coordination and emotional expression and creativity. According to these findings, early childhood educators can use the CUESORY method to help kids reach their full potential in learning. One of the suggestions is to use the CUESORY method as the main strategy for early childhood education. The early childhood education curriculum in kindergartens and childcare facilities may incorporate the CUESORY approach. Children can realize their full potential when instruction emphasizes play activities for their sensory and cognitive development.

The second critical component is teacher and educator training. To effectively implement the CUESORY approach, educators must receive structured training organized by relevant authorities such as the Ministry of Education or certified early childhood training centers. The training should focus on the principles of sensory-based learning, hands-on use of the CUESORY teaching aid, and strategies for integrating it into daily lesson plans to maximize developmental outcomes for children.This approach is used to promote children's cognitive growth and teach children with multiple senses.

Thirdly, the availability of materials and instructional aids. Educational centres must stock materials and teaching aids that complement the CUESORY technique. This includes items that stimulate the senses through touch, music, painting supplies, and interactive narratives.

Fourth, ongoing assessment and observation. To guarantee the CUESORY method's efficacy, ongoing observation and assessment must go hand in hand with its implementation. Teachers, parents, and kids can provide data and feedback to help refine this strategy.

Working Together with Parents is the Fifth. Parents ought to participate in this educational process as well. They can receive direction and instruction on how to use CUESORY's tenets to enhance their kids' learning at home. This guarantees children's learning to be continuous and consistent.

As a result, by putting these suggestions into practice, the CUESORY technique can be used effectively in early childhood education to assist kids in developing critical abilities that will lay the groundwork for their future learning and growth.

REFERENCES

1. Barger, M. M., Kim, E. M., Kuncel, N. R., & Pomerantz, E. M. (2019). The relation between parents' involvement in children's schooling and children's adjustment: A meta-analysis. Psychological Bulletin, 145(9), 855–890. https://doi.org/10.1037/bul0000201
2. Bartan, S., & Alisinanoğlu, F. (2024). Preschool teachers' views on sensory education. Southeast Asia Early Childhood Journal, 13(1), 81–94.
3. Ceylan, S., Beşir, H., & Sultan, K. E. (2021). Duyu gelişimini destekleyici materyaller ve oyunlar: Bebeğimle 36 ay duyu gelişimi. Ankara: Nobel.
4. Haningsih, W. O., Ihsan, N, Gusril, Bhatra, R., & Andika, H. (2024). The Influence of Eye-Hand Coordination, Nutritional Status and the Object Control Ability of Early Childhood. Journal of Physical Education, Sport, Health and Recreations. 13 (1), 25-29.

5. Libau, C. M., & Ling, Y.-L. (2020). Peranan bahan bantu mengajar dan persekitaran maklum balas dalam meningkatkan kualiti pembelajaran pelajar. In National Research Innovation Conference (NRICon 2020), Punjab, Pakistan. https://www.researchgate.net/publication/344781071 Peranan bahan bantu mengajar dan_persekitaran_maklum_balas_dalam_meningkatkan_kualiti_pembelajaran_pelajar
6. Jun Long, G. L., & Che Mustafa, M. (2020). Early childhood teachers' perspectives on the effectiveness of teaching vocabulary through nursery rhymes. Jurnal Pendidikan Awal Kanak-Kanak Kebangsaan, 9, 9–17.
7. Kamaruddin, N. I., Mohammad Jaafar, A. N., & Omar, R. (2022). Use of teaching aids "LPS" in improving writing skills of 5 years old children. Jurnal Pendidikan Bitara UPSI, 15, 172–185. https://doi.org/10.37134/bitara.vol15.sp.16.2022
8. Korkmaz, S. C., & Karatepe, C. (2018). The impact of multi-sensory language teaching on young English learners' achievement in reading skills. Novitas-ROYAL (Research on Youth and Language), 12(2), 80–95.
9. Lillard, A. S. (2023). Montessori education and whole-child development: Evidence from psychological science. Frontiers in Psychology, 14, 10406168.
10. Miller, L. J., Nielsen, D. M., & Schoen, S. A. (2023). Sensory processing and integration in early childhood: The impact of tactile encounters on fine motor skills. Journal of Occupational Therapy, 77(1), 17–29.
11. Prime Minister's Department. (2013). PERMATA Negara curriculum: Educator's guidebook. PERMATA Division, Prime Minister's Department of Malaysia.
12. Pyle, A., DeLuca, C., Wickstrom, H., & Danniels, E. (2022). Connecting kindergarten teachers' play-based learning profiles and their classroom assessment practices. Teaching and Teacher Education, 119, 103855. https://doi.org/10.1016/j.tate.2022.103855
13. Smith, J., Brown, A., & Johnson, P. (2019). The impact of tactile learning on memory recall and spatial knowledge in young children. Journal of Experimental Child Psychology, 102(3), 45–58.
14. Suharyati, H., Laihad, G. H., & Suchyadi, Y. (2019). Development of teacher creativity models to improve teacher's pedagogic competency in the educational era 4.0. International Journal of Innovation, Creativity and Change, 5(6). https://www.sciencedirect.com/science/article/pii/S0742051X22002293
15. Williams, K. E., & Berthelsen, D. (2020). Fine motor skills enhancement through tactile play in early childhood education. Journal of Early Childhood Education Research, 18(3), 223–238.